Exhibit 29

From: Hanselman, Mark <HanselmanM@pondco.com>
Sent: Wednesday, September 11, 2019 8:30 AM

To: Dawe, Nick; Gobble, Kevin

Cc: Heyde, John M.; De Fina, Dave; Musch, Brian; Farnsworth, Steve; Fox, Mike; Sadowski,

David; Wright, Kyle

Subject: [EXTERNAL] Sterigenics - Smyrna Facility Upgrades - Revised Permit Drawings

Attachments: Sterigenics - Smyrna - Revised Permit Drawings (091019).pdf

CAUTION: This email originated from outside of the organization. **DO NOT CLICK** links or attachments unless you recognize the sender and know the content is safe.

Good Morning Chief Dawe & Mr. Gobble,

Pond has completed the revisions to the permit drawings for the Sterigenics Smyrna Facility Upgrades Project. Attached are the PDFs of these drawings and a cover letter with a brief explanation of the revisions.

Please let me know if you have any questions.

Thank you for your continued support on this project.

Regards,

Mark Hanselman, P.E., S.E.*

Senior Associate | Project Manager | Director of Structural Engineering

* A full listing of states registered is available upon request.



Pond | 3500 Parkway Lane | Suite 500 Peachtree Corners, Georgia 30092 p 678.336.7740 | f 678.336.7744 | direct 404.748.4710 www.pondco.com





3500 Parkway Lane, Suite 500 Peachtree Corners, Georgia 30092 T: 678.336.7740 | F: 678.336.7744 www.pondco.com

September 10, 2019

Nicolas Dawe
Division Chief Fire Marshal
Cobb County Fire & Emergency Services
1595 County Services Parkway, Marietta, GA 30008-4201

Kevin Gobble
Chief Building Official
Cobb County Community Development Agency
Development & Inspections
P.O. Box 649
Marietta, GA 30061-0649

RE: Sterigenics Smyrna Facility Upgrades - Permit Revisions

Dear Chief Dawe and Mr. Gobble,

Pond has completed the revisions to the permit drawings that were previously discussed. These drawings include the following revisions:

- 1. Removal of the spice room, including removal of insulated metal wall panels and ceiling, lighting, and fire protection.
- 2. Adding insulated metal wall panels on the backside of the building to create an enclosure.
- 3. Miscellaneous revisions intended to address existing conditions discovered during construction, including:
 - Capping and sealing roof openings and wall opening where existing fans were demolished.
 - b. Existing tank vents were modified to capture additional fugitive emissions.
 - c. Additional redundant roof top blower fan.
 - d. Additional steam coil to protect the drybeds during high humid periods.

Please feel free to contact me at (678) 336-7740 if you have any questions.

Sincerely,

POND & COMPANY

Mark Hanselman, P.E., S.E.

Senior Associate | Project Manager

Enclosure: Revised permit drawings

APPLICABLE CODES

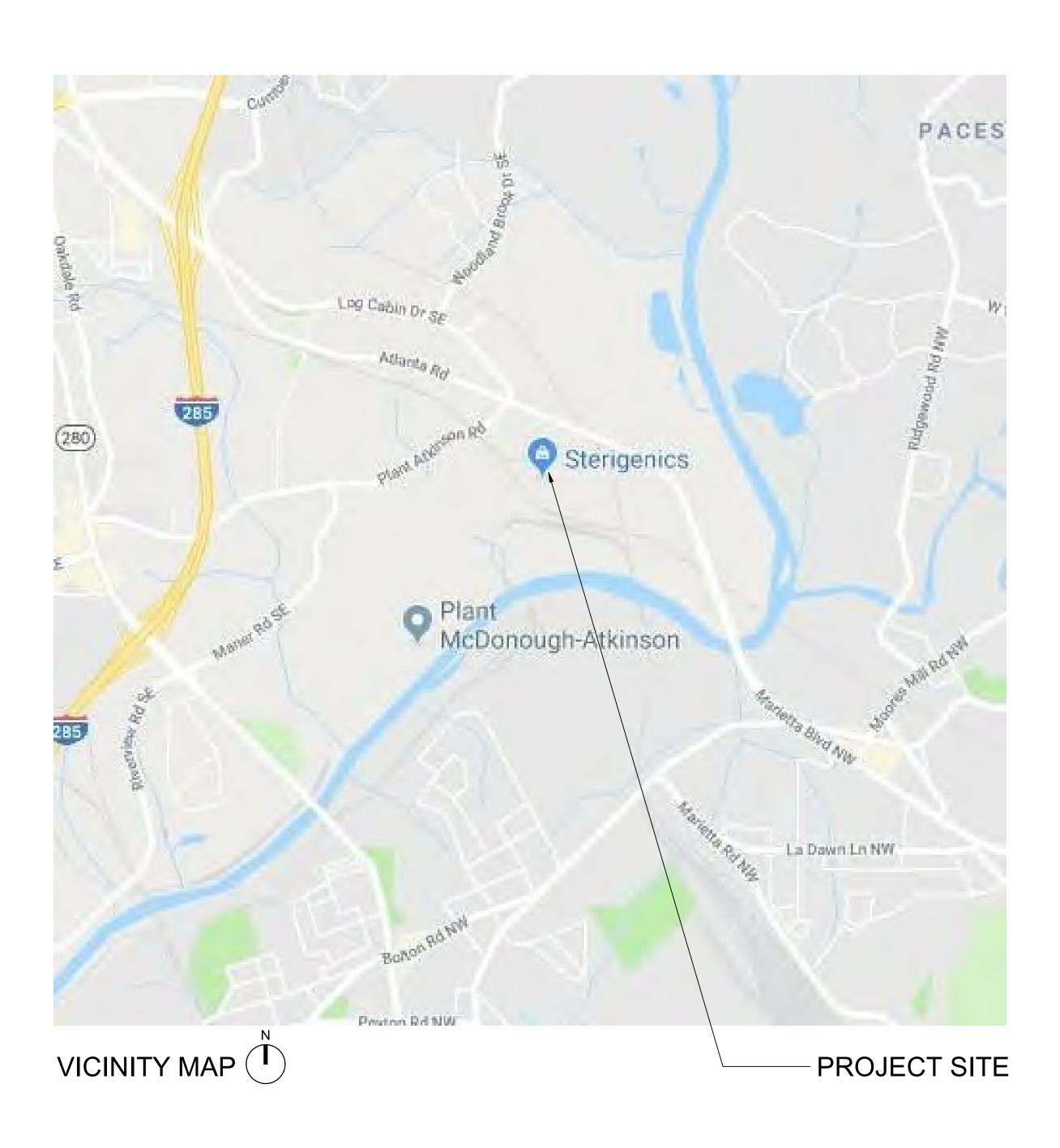
2012 INTERNATIONAL BUILDING CODE, WITH GEORGIA AMENDMENTS 2012 INTERNATIONAL FIRE CODE, WITH GEORGIA AMENDMENTS 2012 INTERNATIONAL PLUMBING CODE, WITH GEORGIA AMENDMENTS

2012 INTERNATIONAL PLUMBING CODE, WITH GEORGIA AMENDMENTS 2012 INTERNATIONAL MECHANICAL CODE, WITH GEORGIA AMENDMEN 2012 FUEL GAS CODE, WITH GEORGIA AMENDMENTS

CONSTRUCTION TYPE: F-1, S-1
CONSTRUCTION TYPE: NEW WORK SHALL CONFORM TO THE REQUIREMENTS OF TYPE II
EXISTING BUILDING AREA: 76,536 SF, (FULLY SPRINKLERED)
JEBC-EXISTING ALTERATION LEVEL: LEVEL II

STERIGENICS SMYRNA UPGRADES

2971 Industrial Court SE, Smyrna, Georgia
ISSUED FOR CONSTRUCTION - REVISED PERMIT APPLICATION - SEPT. 10, 2019





	SHEET INDEX
SHEET NUMBER	SHEET NAME
GENERAL	
G-001	COVER SHEET & SHEET INDEX
STRUCTURA	AL
S-001	GENERAL STRUCTURAL NOTES
S-002	SPECIAL INSPECTIONS
S-101	FLOOR PLAN
S-102	ROOF PLAN
S-201	PARTIAL PLANS
S-202	PARTIAL PLANS
S-301	CONCRETE & MASONRY SECTIONS & DETAILS
S-521	STEEL SECTIONS & DETAILS
S-522	STEEL SECTIONS & DETAILS
ARCHITECT	URAL
A-001	GENERAL NOTES, ABBREVIATIONS & SYMBOLS
A-1 <u>0</u> 1	FLOOR PLAN
A-151	ROOF PLANT
A-401	NOT USED - DELETED
A-492	MENLARGEN PLANS AND FLEWATIONS AND THE
A-501	ARCHITECTURAL DETAILS
A-502	ARCHITECTURAL DETAILS
A-601	DOOR AND FRAME SCHEDULE, ELEVATIONS, DETAILS AND FINISH LEG
MECHANICA	L
M-001	MECHANICAL GENERAL NOTES AND ABBREVIATIONS
M-002	MECHANICAL SPECIFICATIONS, LEGENDS, AND HVAC DESIGN CRITER
MD101	HVAC DEMOLITION PLAN
MD120	HVAC DEMOLITION ROOF PLAN
MH101	OVERALL HVAC PLAN
MH120	HVAC ROOF PLAN
M-501	MECHANICAL DETAILS
M-601	MECHANICAL SCHEDULES
M-800	NOT USED - DELETED
M-801	MECHANICAL CONTROLS
M-802	MECHANICAL CONTROLS
ELECTRICAL	-
E-001	ELECTRICAL GENERAL NOTES AND ABBREVIATIONS
E-002	ELECTRICAL LEGEND
ED101	ELECTRICAL DEMOLITION PLAN
E-101	LIGHTING PLAN
E-111	POWER PLAN
E-121	MECHANICAL POWER ROOF PLAN
E-131	HAZARDOUS CLASSIFICATION PLAN
E-401	ENLARGED ELECTRICAL ROOMS
E-501	ELECTRICAL DETAILS
E-601	ONE-LINE DIAGRAM
E-602	MECHANICAL AND LIGHT FIXTURE SCHEDULES
E-603	PANELBOARD SCHEDULES
E-701	ELECTRICAL SPECIFICATIONS



SHEET ID

G-001

RECEP.

REF.

REINF.

REQ'D.

REV.

R.D.

RHR

R.O.

SCW

SCHED.

SECT.

S.G.P.

SHT. MET

SPEC(S)

SSK

SIM.

STC

SFRM

SQ.

ST.

S.S.

STD.

STL.

STOR.

SUSP.

TEL.

TOB

TOC

T/C

TOS

T/W

TYP.

U.L.

UNFIN

U.N.O.

VERT.

VEST.

VCT

VCB

V.T.R.

W.C.

WCO

WD.

WDW.

W.M.P.

W.R.O.

W/O

YD.

THK.

T'HOLD

STRUCT

TOIL. / TLT

RAISED ACCESS FLOOR

RECEPTIONIST

REINFORCEMENT

ROUGH OPENING

SEALED CONCRETE

SOLID CORE WOOD

SEMI-GLOSS PAINT

SOUND TRANSMISSION CLASS

SPRAYED FIRE RESISTIVE

SERVICE SINK

SPECIFICATION

STAINLESS STEEL

SHEET METAL

RUBBER BASE

SCHEDULE

SECTION

SIMILAR

MATERIAL

STANDARD

STORAGE

STRUCTURAL

SUSPENDED

TELEPHONE

THRESHOLD

TOP OF BEAM

TOP OF CURB

TOP OF STEEL

TOP OF WALL

UNFINISHED

VERTICAL

WIDTH

WOOD

WINDOW

WITHOUT

BOARD

WITH

VESTIBULE

TOUCH-UP

TYPICAL

TEMPERED GLASS

TOP OF CONCRETE

UNDERWRITERS LABORATORIES

UNLESS NOTED OTHERWISE

VINYL COMPOSITION TILE

VINYL COVE BASE

VENT THRU ROOF

WATER CLOSET

WALL CLEAN OUT

WIRE MESH PARTITION

WEATHERSTRIPPING

WATER RESISTANT GYPSUM

WINDOW ROUGH OPENING

SQUARE

STAIN

STEEL

TOILET

THICK

TOP OF

REVISIONS / REVISED

RIGHT HAND REVERSE

REFERENCE

REQUIRED

ROOF DRAIN

RIGHT HAND

ROOM

GALV.

G.B.F.

GFCI

GFGI

G.L.

G.P.

GOVT

GYP.

HKS

HR.

HDW

HGT

IMP

I.D.

JST.

K.P.

LAM.

LDG.

LAV.

L.H.

LHR

LTG.

LVR.

L.P.

MAS.

M.O.

MGR.

MANUF

MATL.

MAX.

MTL.

MIN.

N.I.C.

NTS

O.C.

OFCI

O.H.

OPNG.

O.W.

OPP.

O.D.

OSHA

OVHD

PDU

PR.

PNL.

PART.

PLAS.

PSF

PSI

Q.T.

P.M.J.F.

PRE-FAB

PLYWD

LBS. OR #

NFPA

NO. (#)

MISC.

MECH.

M.W.P.

LONG

INSUL

GYP. BD. (GV

ACCESS FLOORING

ACCESSORIES

ACOUSTICAL

ANODIZED

ALUMINUM

APPROVED

AVERAGE

BEAM

BOARD

BOTTOM

BUILDING

INSTALLED

CEILING HEIGHT

CENTER TO CENTER

CENTER LINE

CERAMIC TILE

CHANNEL

CARPET

CEILING

CENTER

CLEAR

CLOSET

COMPANY

CONCRETE

CORRIDOR

REPRESENTATIVE

CONFERENCE

CONTINUOUS

CONTRACTOR

CUBIC YARD

DETAIL

DOOR

DOWN

EACH

DIAMETER

DIMENSION

DISPENSER

DOWNSPOUT

DESCRIPTION

ELECTRICAL OR ELECTRIC

ELECTRIC WATER COOLER

EMERGENCY ROOF DRAIN

EXPANSION / EXPOSED

EXPOSED TO STRUCTURE

ESTIMATED TRAVEL DISTANCE

FIRE EXTINGUISHER CABINET

FIBER REINFORCED PLASTIC

FIRE DEPARTMENT CONNECTION

EXPANSION JOINT

FIRE EXTINGUISHER

FIRE HOSE CABINET

FINISHED FLOOR

FLOOR DRAIN

FLUORESCENT

FACE OF GIRT

FOUNDATION

FIELD VERIFY

FOOTING

DRAWING

ELEVATION

ENGINEER

EQUIPMENT

EQUAL

EXISTING

EXTERIOR

FEET

FINISH

FLOOR

FLAT PAINT

EPOXY PAINT

CONTROL JOINT

CONSTRUCTION

CONCRETE MASONRY UNIT

COLUMN

CLEANOUT

BLOCKING

APPROXIMATE

ARCHITECTURAL

ASSOCIATION, INC.

BASIS OF DESIGN

BUILT-UP ROOFING

AND

ANGLE

ANCHOR BOLT

AIR CONDITIONING

ABOVE FINISHED FLOOR

ACCESS DOOR / PANEL

ADJUST/ ADJUSTABLE

AMERICAN WITH DISABILITIES

ACCESSIBILITY GUIDELINES

ACOUSTICAL CEILING TILE

ANTI TERRORISM / FORCE PROTECTION

ARCHITECTURAL WOODWORK INSTITUTE HORIZ.

BUILDER'S HARDWARE MANUFACTURER'S H.V.A.C

CONTRACTOR FURNISHED CONTRACTOR J.C.

CONTRACTING OFFICER'S TECHNICAL

A.F.F.

ACC. DR

ACCESS

ACOUST

ADJ.

A.B.

ACT

A.C.

ANOD.

APPROX

ARCH.

AVG.

A.W.I.

B.H.M.I.

BLKG

B.O.D.

BTM.

BLDG

B.U.R.

CFCI

CPT.

CLG.

CTR.

C.T.

CLR.

C.O.

CO.

COL.

CONC

CORR.

COTR

CONF

CONST

CONT.

CONTR

C.J.

C.Y.

DET

DIA.

DIM.

DR.

DN.

D.S.

DESC

DWG.

ELEC.

E.W.C.

E.R.D.

ENGR.

EQUIP.

E.P.

EQ.

EXIST

EXP.

EXT.

ETD

FDC

FT.

F.E.

F.E.C.

F.H.C.

FIN.

F.P.

FLR.

F.D.

FLUOR

F.O.G.

FTG.

FDN.

FRP

FV.

E.J. (EXP. JT.)

EXP. TO STRUCT.

DISP.

CLOS

CLG. HT

Č. TO C

ADAAG

GAGE OR GAUGE

GYPSUM BOARD FURRING

GOVERNMENT FURNISHED

CONTRACTOR INSTALLED

GOVERNMENT FURNISHED

GOVERNMENT INSTALLED

GALVANIZED

GIRT LINE

GLASS

HOOKS

HEIGHT

HIGH

INCH

HANDRAIL

HARDWARE

HIGH POINT

HORIZONTAL

HOSE BIBB

HOLLOW METAL

CONDITIONING

INSIDE DIAMETER

JANITOR'S CLOSET

INSULATION

INTERIOR

JANITOR

KICK PLATE

LAMINATE

LANDING

LIGHT

LIGHTING

LOUVER

LOW POINT

MASONRY

MANAGER

MATERIAL

MAXIMUM

METAL

MINIMUM

NUMBER

MECHANICAL

LONGITUDINAL

LAVATORY

LEFT HAND

LEFT HAND REVERSE

MASONRY OPENING

METAL WALL PANEL

MISCELLANEOUS

NOT IN CONTRACT

OWNER FURNISHED

OWNER FURNISHED

OPPOSITE HAND

OUTSIDE DIAMETER

CONTRACTOR INSTALLED

GOVERNMENT INSTALLED

OCCUPATIONAL SAFETY AND

POWER DISTRIBUTION UNIT

PLASTER OR PLASTIC

POUNDS / SQUARE FOOT

POUNDS / SQUARE INCH

PREFABRICATED

QUARRY TILE

PRE-MOLDED JOINT FILLER

NATIONAL FIRE PROTECTION

NOT TO SCALE

ASSOCIATION

ON CENTER

OPENING

OPEN WEB

OPPOSITE

HEALTH ACT

OVERHEAD

PARTITION

PLYWOOD

POUNDS

PAINT

PAIR

PANEL

PLATE

MANUFACTURER

JOINT

JOIST

HEATING VENTILATION & AIR

INSULATED METAL PANEL

GYPSUM

GLOSSY PAINT

GOVERNMENT

GYPSUM BOARD

REQUIREMENTS OF THE CONTRACT DOCUMENTS. 2. THE ENUMERATION OF PARTICULAR ITEMS OF WORK IN ONE PORTION OF THE CONTRACT DOCUMENTS SHALL NOT BE CONSTRUED TO EXCLUDE OTHER ITEMS NECESSARY OR IMPLIED THEREFROM 3. THE CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF THE WORK SO THAT NO WORK SHALL BE LEFT IN AN UNFINISHED OR

INCOMPLETE CONDITION. 4. WORK SHALL CONFORM TO APPLICABLE INDUSTRY AND MANUFACTURER'S PUBLISHED STANDARDS FOR QUALITY OF MATERIALS AND WORKMANSHIP, AS WELL AS, ALL REQUIREMENTS IN THESE DRAWINGS AND SPECIFICATIONS. ANY CONFLICTING REQUIREMENTS OF THE SOURCES LISTED ABOVE SHALL BE BROUGHT TO THE ARCHITECT ATTENTION PRIOR TO PROCEEDING WITH THE WORK. 5. THE CONTRACTOR SHALL PROTECT EXISTING, IN-PLACE, AND NEW

6. WORK NOTED "N.I.C." IS NOT MEANT TO BE PART OF THE CONSTRUCTION SCOPE OF WORK AGREEMENT 7. THE CONTRACTOR SHALL PAY FOR AND COORDINATE THE REMOVAL AND LEGAL DISPOSAL OF MATERIALS AND RUBBISH 8. ONCE ON SITE, THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND SHALL VERIFY ALL NEW AND EXISTING CONDITIONS, SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT IN WRITING OF ANY DIFFERING CONDITIONS BEFORE COMMENCEMENT OF

WORK. 9. DO NOT SCALE DRAWINGS; DIMENSIONS GOVERN, LARGE SCALE DETAILS GOVERN OVER SMALL SCALE DETAILS. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT IN WRITING OF ANY DIFFERING CONDITIONS BEFORE COMMENCEMENT OF WORK.

10. UNLESS NOTED OTHERWISE, ALL GYPSUM BOARD SURFACES ARE TO RECEIVE ONE PRIMER COAT AND TWO COATS OF PAINT 11. DIMENSIONS NOTED AS 'HOLD' SHALL NOT VARY BY MORE THAN 1/8" FROM SIDE TO SIDE OR FROM FRONT TO BACK, FINISHED SURFACE TO

FINISHED SURFACE. 12. NFPA 241, STANDARD FOR SAFEGUARDING CONSTRUCTION, AND ALTERATION OPERATIONS SHALL BE APPLIED. 13. WALL AND/OR CEILING ASSEMBLIES THAT ARE IDENTIFIED WITH A FIRE RESISTIVE RATING SHALL BE CONSTRUCTED AS DETAILED HEREIN. 14. DIMENSIONS SHOWN ARE TO FACE OF STUD OR CMU (U.N.O.). 15. PROVIDE EXPANSION AND CONTROL JOINTS IN ALL WORK AS PER PRODUCT MANUFACTURER'S STANDARDS, U.N.O.

16. THE CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH APPLICABLE CODES, ORDINANCES AND REGULATORY AGENCIES AND SHALL OBTAIN NECESSARY BUILDING AND FIRE PERMITS FROM AUTHORITIES HAVING JURISDICTION.

17. INTERIOR FINISH MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF APPLICABLE CODES. ORDINANCES AND REGULATORY AGENCIES.

18. DISSIMILAR METALS SHALL BE ISOLATED FROM EACH OTHER TO AVOID GALVANIC CORROSION. 19. NOTES APPEAR ON VARIOUS SHEETS FOR DIFFERENT SYSTEMS AND MATERIALS. SHEETS ARE TO BE REVIEWED AND NOTES ON INDIVIDUAL SHEETS SHALL BE APPLIED TO RELATED DRAWINGS AND DETAILS. 20. A FINISH INDICATION ON A WALL SHALL MEAN THE ENTIRE LENGTH AND HEIGHT OF WALL IS TO BE FINISHED OR FIRE-RATED AS INDICATED. 21. WHEN NON-DIMENSIONED PARTITIONS APPEAR IN CONJUNCTION WITH DOOR OPENINGS, THE DOOR WIDTH AND THE DOOR FRAME DETAILS DETERMINE THE LOCATION OF ADJACENT WALLS AND FRAMES. 22. DETAILS NOT SHOWN ARE SIMILAR IN CHARACTER TO THOSE DETAILED. WHERE SPECIFIC DIMENSIONS, DETAILS OR DESIGN INTENT CANNOT BE DETERMINED, CONSULT THE ARCHITECT BEFORE

PROCEEDING WITH THE WORK 23. THE CONTRACTOR SHALL COORDINATE MECHANICAL AND ELECTRICAL FLOOR AND WALL SLEEVES INCLUDING CONDUITS WITH ALL MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION, STRUCTURAL AND

ARCHITECTURAL DRAWINGS. 24. PROVIDE ACCESS PANELS AS REQUIRED BY APPLICABLE CODES AND AS REQUIRED FOR MECHANICAL EQUIPMENT AND PLUMBING WORK. ALL ACCESS PANELS SHALL BE CONCEALED AND LOCATIONS SHALL BE REVIEWED WITH THE ARCHITECT PRIOR TO PROCEEDING. 25. PIPE DUCTS AND BUS DUCTS THAT PENETRATE FLOOR SLABS OR WALL PARTITIONS SHALL BE INSTALLED IN A MANNER THAT WILL PRESERVE THE MOISTURE RESISTIVENESS, FIRE RATING, AND

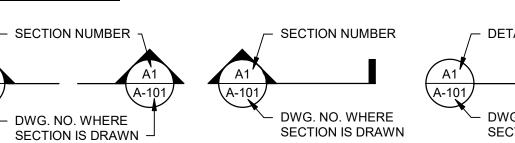
STRUCTURAL INTEGRITY OF THE BUILDING. 26. DO NOT CUT INTO, REMOVE OR ALTER ANY STRUCTURAL MEMBER OR PORTION OF THE FLOOR SYSTEM UNLESS IT IS SPECIFICALLY NOTED OR SHOWN ON THE STRUCTURAL DRAWINGS. 27. INTERIOR PARTITION MOVEMENT CONTROL:

A. VERTICAL CONTROL JOINTS FOR ANY WALL LENGTH ARE TO OCCUR AT NOT MORE THAN 30'-0" O.C. IN THE HORIZONTAL DIRECTION, UNLESS NOTED OTHERWISE.

B. PROVISIONS SHALL BE MADE IN THE DESIGN, FABRICATION, AND INSTALLATION OF INTERIOR PARTIONS FOR TYPICAL FLOOR DEFLECTIONS OF THE STRUCTURE UNDER SUPERIMPOSED LOADS AS FOLLOWS: TYPICAL ROOF/FLOOR MEMBERS: SPAN/360 BUT NOT LESS THAN 1/2" 28. THE CONTRACTOR SHALL PLAN THE WORK TO PROVIDE ADEQUATE PROTECTION FOR PERSONS AND PROPERTY AT ALL TIMES, AND EXECUTE THE WORK IN SUCH A MANNER TO AVOID ANY HAZARD TO PERSONS AND PROPERTY AS NECESSARY.

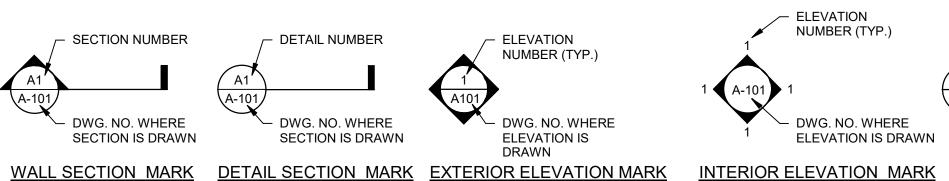
29. THE CONTRACTOR SHALL COORDINATE THE PHASING OF THE WORK TO BE PERFORMED IN OR ABOUT EXISTING FACILITIES. IF APPLICABLE. WITH THE OWNER'S REPRESENTATIVE PRIOR TO START OF SUCH WORK.

SYMBOLS:



ELEVATION NUMBER (TYP.) DWG. NO. WHERE ► DWG. NO. WHERE SECTION IS DRAWN **ELEVATION IS**

(HEIGHT)



DETAIL IS DRAWN

CALLOUT HEAD

NUMBER (TYP.)

— DWG. NO. WHERE

- AREA

DETAIL

COVERED B

INTERIOR ELEVATION MARK

PLAN SYMBOLS:

BUILDING SECTION MARK

 PARTITION TYPE - SUBSCRIPT TYPE (AS REQ) (12'-0" A.F.F.) PARTITION TYPE KEYNOTE

VIEW TITLES:

ROOM NAME

 DETAIL IDENTIFIER (MODULE LETTER AND NUMBER) ELEVATIONS, DETAILS & CALLOUTS

SCALE: 1/8" = 1'-0" FLOOR PLANS, ELEVATIONS OR DETAIL VIEWS TITLE

MATERIALS IN SECTION - FILL PATTERNS:

BATT INSULATION CONCRETE / GROUT

<u>GRAVEL</u>

<u>EARTH</u>

GYPSUM / PLASTER

EXPOSED & FINISHED WOOD TRIM

MASONRY - CONCRETE BLOCK

MASONRY - BRICK

- CEILING TYPE

CEILING HGT.

1t 12'-0" A.F.F.)

CEILING TAG

(TYPE & HEIGHT)

RIGID INSULATION

<u>PLYWOOD</u> SAND / E.I.F.S. / PLASTER / STUCCO

STEEL

SHEET ID A-001

NEW DRYBEDS, SEE MECHANICAL

FLOOR PLAN NOTES: 1. CLOSE, PATCH AND SEAL OPENINGS AND HOLES IN WALLS WHERE DUCTS, PIPES, GRILLES, REGISTERS, SWITCHES, OUTLETS, ETC. ARE REMOVED SEAL PENETRATIONS AT RATED PARTITIONS OR FLOORS WITH FIRE RATED SEALANT. 2. DIMENSIONS ARE FROM FINISHED FACE OF WALL TO FINISHED FACE OF WALL, U.N.O. 3. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF DEVICES INDICATED ON THE ENGR. DWGS. 4. INFILL EXISTING OPENINGS FROM ABANDONED M.E.P. PENETRATIONS WITH NEW CONSTRUCTION TO MATCH ADJACENT EXISTING CONSTRUCTION. MATCH MATERIAL FINISHES, INSULATION VALUES AND RATINGS OF EXISTING ADJACENT ASSEMBLIES.

SHEET ID A-101

K

SCALE: 1/16" = 1'-0"

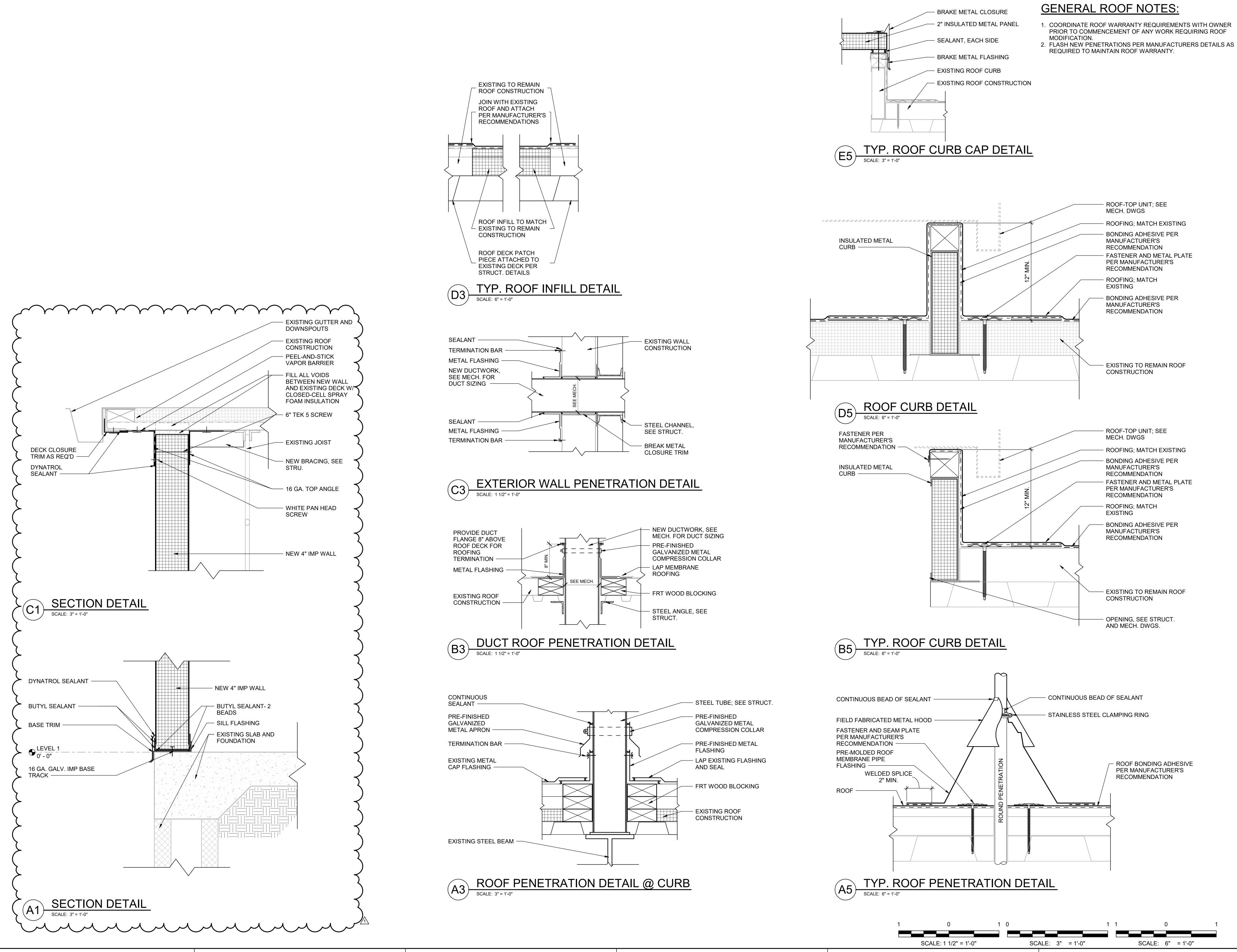
Case 1:20-cv-01382-WMR Document 1-2 Filed 03/30/20 Page 7 of 342 **GENERAL ROOF NOTES:** COORDINATE ROOF WARRANTY REQUIREMENTS WITH OWNER PRIOR TO COMMENCEMENT OF ANY WORK REQUIRING ROOF MODIFICATION. 2. FLASH NEW PENETRATIONS PER MANUFACTURERS DETAILS AS REQUIRED TO MAINTAIN ROOF WARRANTY. **KEYNOTES**: (KEYNOTE NUMBERS ARE UNIFORM ACROSS ALL SHEETS AND SOME MAY NOT BE REQUIRED ON THIS SHEET) KEYNOTE DESCRIPTION A16 NEW MECH. EQUIPMENT, SEE MECH. A17 EXISTING MECH. DUCTWORK, SEE MECH. A18 NEW MECH DUCTWORK AND DUCT SUPPORT, SEE A21 EXISTING STACK A22 EXISTING STRUCTURAL STEEL STACK PLATFORM, SEE STRUCT. SHEET ID

Copyright © 2019 by Pond & Company. All rights reserved. No copying or duplication of these documents is allowed without the express written agreement of Pond & Company.

A-151

Copyright © 2019 by Pond & Company. All rights reserved. No copying or duplication of

these documents is allowed without the express written agreement of Pond & Company.



SHEET ID

A-502

2. THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS SHALL BE EXPERIENCED AND QUALIFIED TO PERFORM THE TYPE OF CONSTRUCTION REQUIRED TO COMPLETE THE WORK PRESCRIBED BY THE CONTRACT DOCUMENTS. THE CONTRACT DOCUMENTS WERE PREPARED AS A COMPLETE SET OF PROJECT DRAWINGS. IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE ALL INFORMATION PROVIDED IN THE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS. THE CONTRACTOR SHALL NOTIFY THE OWNER AND ARCHITECT/ENGINEER IMMEDIATELY OF ANY CONFLICTS, OMISSIONS, OR DISCREPANCIES. THIS COORDINATION SHALL BE PERFORMED BEFORE THE PROCUREMENT OF MATERIALS AND/OR FABRICATION OF ANY PROJECT COMPONENTS.

CONTRACTOR, INCLUDING ALL ERRORS AND OMISSIONS. IN ADDITION, THE CONTRACTOR IS

SOLELY RESPONSIBLE FOR ALL MEANS, METHODS, AND SEQUENCING OF CONSTRUCTION.

- 3. WHERE SECTION IS SHOWN AND DETAILED, OTHER SECTIONS OF SIMILAR CONDITION SHALL BE DETAILED THE SAME OR OPPOSITE HAND, WHETHER SPECIFICALLY NOTED OR NOT.
- 4. CONTRACTOR SHALL VERIFY EXISTING DIMENSIONS, ELEVATIONS, AND SITE CONDITIONS BEFORE BEGINNING CONSTRUCTION. NOTIFY ENGINEER OF RECORD OF ANY DISCREPANCIES.
- 5. COORDINATE SIZES AND LOCATIONS OF ALL FLOOR AND ROOF PENETRATIONS WITH PLUMBING, MECHANICAL, AND ARCHITECTURAL REQUIREMENTS.
- 6. ENGINEER'S APPROVAL MUST BE SECURED FOR ALL SUBSTITUTIONS. SUCH APPROVAL MAY ALSO BE WITHHELD AT THE SOLE DISCRETION OF THE ENGINEER.
- 7. THE STRUCTURES HAVE BEEN DESIGNED IN ACCORDANCE WITH THE PROVISIONS OF THE
- FOLLOWING:

 a. INTERNATIONAL BUILDING CODE, 2012 EDITION (IBC 2012) WITH LATEST GEORGIA STATE
- AMENDMENTS.
- b. AMERICAN SOCIETY OF CIVIL ENGINEERS, "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES," 2010 EDITION (ASCE 7-10).
- THE CONTRACTOR SHALL PROVIDE TEMPORARY SHORING AND BRACING REQUIRED TO ERECT AND HOLD THE STRUCTURE IN PROPER ALIGNMENT UNTIL PERMANENT SUPPORTS AND LATERAL BRACING ARE IN PLACE.
- 9. DO NOT SCALE DRAWINGS, USE DIMENSIONS.

FOLLOWS:

10. DESIGN LOADS USED IN THE DESIGN OF THE STRUCTURAL SYSTEMS IN THIS PROJECT ARE AS

	RISK CATEGORY	IV
٠.	DEAD LOAD:	15 pef (NOT INCLUD

DEAD LOAD:
BLOWER FAN PLATFORM(S)

15 psf (NOT INCLUDING STRUCTURE SELF WT.)

C.	LIVE LOAD: BLOWER FAN PLATFORM(S) ROOF	SEE PLAN 20 psf (REDUC
d.	ROOF SNOW LOAD: GROUND SNOW LOAD, p_g SNOW EXPOSURE FACTOR, C_e IMPORTANCE FACTOR, I_s THERMAL FACTOR, C_t	5 psf 1.0 1.2 1.0

- IMPORTANCE FACTOR, I_s 1.2
 THERMAL FACTOR, C_t 1.0
 FLAT ROOF SNOW LOAD, p_f 9.2 psf

 B. WIND DESIGN CRITERIA:
 EXPOSURE CATEGORY

 B.
- EXPOSURE CATEGORY

 BASIC WIND SPEED, VINTERNAL PRESSURE COEFFICIENT, GC_p INTERIOR WIND LOADING (PARTITIONS)

 B

 120 mph (FACTORED, ULTIMATE LOAD)

 93 MPH (UNFACTORED, SERVICE LOAD) ± 0.18 5 psf (UNFACTORED, SERVICE LOAD)
- f. <u>SEISMIC DESIGN CRITERIA:</u> SPECTRAL RESPONSE ACCE
- SPECTRAL RESPONSE ACCELERATION: $S_{S} \text{ (SHORT PERIOD (0.2 SECOND))} \qquad 0.193 \text{ g}$ $S_{1} \text{ (LONG PERIOD (1.0 SECOND))} \qquad 0.091 \text{ g}$ $S_{DS} \text{ (SHORT PERIOD (0.2 SECOND))} \qquad 0.206 \text{ g}$ $S_{D1} \text{ (LONG PERIOD (1.0 SECOND))} \qquad 0.146 \text{ g}$ SITE CLASS CLASS D

 SEISMIC DESIGN CATEGORY D
- SEISMIC DESIGN CATEGORY

 LATERAL FORCE RESISTING SYSTEM FOR NEW PLATFORMS

 STEEL SYSTEM NOT SPECIFICALLY

 DETAILED FOR SEISMIC RESISTANCE

 IMPORTANCE FACTOR, I_e

 RESPONSE MODIFICATION COEFFICIENT, R

 3.0
- ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE

 1. ALL VERTICAL ELEVATIONS ARE BASED ON THE CONTROL ELEVATION FROM SURVEY BY OTHERS.
- B. CAST-IN-PLACE CONCRETE
 1. CAST-IN-PLACE CONCRETE FOR THIS PROJECT SHALL COMPLY WITH THE AMERICAN CONCRETE INSTITUTE (ACI) "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE AND COMMENTARY" ACI 318-14 AND ACI 318R-14.
- 2. CONCRETE SHALL HAVE THE FOLLOWING PROPERTIES:

AREA	STRENGTH @ 28 DAYS	AIR CONTENT	MAX. W/C RATIO
FOUNDATIONS	3,000 psi	< 6%	0.45
REMAINING AREAS	4,000 psi	< 3%	0.45

- 3. ALL EXPOSED CONCRETE EDGES SHALL HAVE 3/4" CHAMFER, WHETHER SPECIFICALLY NOTED OR
- 4. TYPICAL SLAB FINISH SHALL BE BROOM FINISH FOR EXTERIOR SLABS AND INTERIOR WET SLABS AND STEEL TROWEL FINISH FOR INTERIOR DRY SLABS.
- 5. ALL ANCHOR RODS SHALL BE BLACK STEEL.
- 6. CONCRETE FORMWORK SHALL COMPLY WITH ACI 347, LATEST EDITION. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF ALL FORMWORK.
- 7. DURING AND IMMEDIATELY AFTER PLACING, CONCRETE SHALL BE THOROUGHLY COMPACTED BY SPADING OR MECHANICAL VIBRATING TO PROVIDE DENSE CONCRETE FREE OF HONEYCOMBING.
- 8. DIRECTLY AFTER FORMS HAVE BEEN REMOVED, ALL EXPOSED TIE WIRES AND STAPLED ENDS SHALL BE REMOVED FROM CONCRETE SURFACES TO BE EXPOSED. CUT TIES FLUSH WITH FINISHED SURFACES FOR ALL OTHER CONCRETE. RUB SMOOTH OR CUT OFF FINS AND ROUGH PLACES. REMOVE ALL LOOSE CONCRETE AND OTHER IRREGULARITIES. PATCH AND FILL VOIDS WITH BONDING AGENT AS REQUIRED.
- ROUGHEN ALL CONSTRUCTION JOINTS TO A MINIMUM OF 1/4" AMPLITUDE UNLESS NOTED OTHERWISE.

- C. CONCRETE REINFORCEMENT:
- 1. REINFORCING STEEL SHALL CONFORM TO ASTM A615 SUPPLEMENT SI, GRADE 60, OF DOMESTIC MANUFACTURER.
- REINFORCEMENT SHALL BE FABRICATED TO SHAPES AND DIMENSIONS SHOWN AND SHALL CONFORM TO THE REQUIREMENTS OF CRSI AND ACI 318. REINFORCEMENT SHALL BE COLD BENT UNLESS OTHERWISE AUTHORIZED. BENDING MAY BE ACCOMPLISHED IN THE FIELD OR AT THE MILL. BARS SHALL NOT BE FIELD BENT WITHOUT THE APPROVAL OF THE ENGINEER.
- 3. REINFORCEMENT SHALL BE FREE FROM LOOSE RUST AND SCALE, DIRT, OIL, OR OTHER DELETERIOUS COATING THAT COULD REDUCE BOND WITH THE CONCRETE.
- 4. NO SPLICES OF REINFORCEMENT SHALL BE PERMITTED EXCEPT AS DETAILED OR AUTHORIZED. MAKE BARS CONTINUOUS AROUND CORNERS WITH CORNER BARS. WHERE PERMITTED, SPLICES MADE BY CONTACT LAPS SHALL BE CLASS "B" TENSION LAPS.
- TENSION AND COMPRESSION REINFORCEMENT SPLICE LENGTHS IN CONCRETE SHALL BE DETERMINED AS FOLLOWS:

BAR SIZE	#3	#4	#5	#6	#7	#8	#9	#10	#11
TOP BAR SPLICE SIZE	28"	37"	47"	56"	81"	93"	105"	118"	131"
BOTTOM BAR SPLICE SIZE	22"	29"	36"	43"	63"	72"	81"	91"	101"

- a. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE CAST BELOW THE BARS
- b. THE TABLE ABOVE IS BASED ON A CONCRETE COVER AT LEAST EQUAL TO THE BAR DIAMETER AND A CENTER TO CENTER BAR SPACING AT LEAST EQUAL TO 3 TIMES THE BAR DIAMETER. MULTIPLY THE ABOVE LENGTHS BY 1.5 WHERE THESE CONDITIONS DO NOT EXIST.
- 6. WHERE HOOKS ARE SHOWN, PROVIDE STANDARD 90 DEGREE HOOKS IN ACCORDANCE WITH CRSI AND ACI 318, UNLESS NOTED OTHERWISE.
- 7. WHERE REQUIRED, PROVIDE DOWELS TO MATCH SIZE AND SPACING OF VERTICAL REINFORCING FROM FOUNDATION. DOWELS SHALL HAVE STANDARD 90 DEGREE HOOKS.
- 8. MINIMUM CONCRETE REINFORCING COVER REQUIREMENTS:

EXPOSURE	CONST. TYPE	BAR SIZE	MINIMUM COVER
CONCRETE CAST AGAINST EARTH:	ALL	ALL	3"
FORMED CONCRETE EXPOSED	WALLS,	#6 BAR AND LARGER	2"
TO EARTH OR WEATHER:	SLABS	#5 BAR AND SMALLER	1 1/2"
FORMED CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:	WALLS, SLABS	#11 BAR AND SMALLER	3/4"

- 9. ALL REINFORCING STEEL AND EMBEDDED ITEMS SUCH AS ANCHOR RODS AND WELD PLATES SHALL BE PLACED TO PREVENT DISPLACEMENT BEYOND PERMITTED TOLERANCES.
- 10. DETAIL BARS IN ACCORDANCE WITH "ACI DETAILING MANUAL-2004," PUBLICATION SP-66, ACI 318, AND ACI 315, OR LATEST EDITIONS.
- 11. PROVIDE ACCESSORIES NECESSARY TO PROPERLY SUPPORT REINFORCING AT POSITIONS SHOWN ON PLANS.
- 12. WELDING OF REINFORCEMENT IS NOT PERMITTED.
- D. CONCRETE MASONRY
- CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C90, TYPE II, TWO CELL UNITS, AND BE MADE WITH LIGHT WEIGHT AGGREGATE. THE COMPRESSIVE STRENGTH OF MASONRY, f'm, EXPRESSED AS FORCE PER UNIT OF NET CROSS-SECTIONAL AREA, SHALL BE 1500 psi AT 28 DAYS.
- 2. REINFORCING STEEL SHALL COMPLY WITH ASTM A615, GRADE 60. SHOP FABRICATE REINFORCING BARS WHICH ARE SHOWN TO BE HOOKED.
- 3. GROUT SHALL COMPLY WITH ASTM C476, AND SHALL BE PROPORTIONED TO OBTAIN A 28 DAY COMPRESSIVE STRENGTH OF 2000 psi.
- 4. MORTAR SHALL COMPLY WITH ASTM C270, TYPE S. AGGREGATE FOR MORTAR SHALL COMPLY WITH ASTM C144. AGGREGATE FAILING TO COMPLY WITH ASTM C144 GRADATION REQUIREMENTS MAY BE USED PROVIDED THE MORTAR CAN BE PREPARED TO COMPLY WITH THE AGGREGATE RATIO, WATER RETENTION, AND COMPRESSIVE STRENGTH REQUIREMENTS OF THE PROPERTY SPECIFICATIONS IN ASTM C270.
- 5. PROVIDE VERTICAL REINFORCING BARS OF THE GIVEN SIZE AND SPACING SHOWN ON THE DRAWINGS. TENSION AND COMPRESSION REINFORCEMENT SPLICE LENGTHS IN GROUT SHALL BE DETERMINED AS FOLLOWS:
 - #4 BARS 28" #5 BARS - 35" #6 BARS - 46"
- #6 BARS 46" #7 BARS - 63"
- 6. SEE MASONRY WALL DETAILS ON S-301 FOR REINFORCEMENT REQUIRED ON EACH SIDE OF ALL OPENINGS, CONTROL JOINTS, AND AT CORNERS AND INTERSECTIONS OF ALL MASONRY WALLS, BOTH BEARING AND NONBEARING WALLS.
- 7. PROVIDE REBAR DOWELS FROM THE FOUNDATION OF THE SAME SIZE AND SPACING AS VERTICAL REINFORCING. DOWELS SHALL HAVE STANDARD ACI HOOKS. DOWELS SHALL HAVE A MINIMUM LAP AS SHOWN ON THE DRAWINGS.
- 8. PROVIDE STANDARD 9 GAUGE HORIZONTAL LADDER TYPE JOINT REINFORCING IN CMU WALLS AT 16" ON CENTER AND IN TWO JOINTS IMMEDIATELY ABOVE AND BELOW ALL OPENINGS, EXTENDING A MINIMUM OF 2'-0" OR 48 BAR DIAMETERS, WHICHEVER IS GREATER, BEYOND THE JAMB ON EACH SIDE OF THE OPENING, EXCEPT AT CONTROL JOINTS.
- 9. PROVIDE HORIZONTAL BOND BEAMS WITH CONTINUOUS REINFORCING AS SHOWN IN THE SECTIONS AND DETAILS. DISCONTINUE ALL HORIZONTAL REINFORCING AT CONTROL JOINTS EXCEPT FOR THE BOND BEAM AT THE TOP OF THE WALL. INTERMEDIATE BOND BEAMS SHALL BE PROVIDED AS SHOWN.
- 10. FILL ALL REINFORCED CELLS AND ALL CELLS BELOW GRADE WITH GROUT

- E. LIGHT-GAUGE STEEL FRAMING:
- 1. LIGHT-GAUGE FRAMING SHALL BE A DELEGATED DESIGN.
- 2. SIZE, STYLE, AND GAUGE OF FRAMING MEMBERS SHALL BE BASED ON STEEL STUD MANUFACTURER'S ASSOCIATION PRODUCT TECHNICAL INFORMATION.
- 3. ALL LIGHT-GAUGE STRUCTURAL FRAMING MEMBERS SHALL BE FORMED FROM CORROSION-RESISTANT STEEL, CORRESPONDING TO THE REQUIREMENTS OF ASTM C99 WITH A MINIMUM YIELD STRENGTH OF 33 ksi.
- 4. ALL LIGHT-GAUGE MEMBERS SHALL BE GALVANIZED WITH A G60 COATING.
- 5. LATERAL BRACING SHALL BE INSTALLED IN ALL EXTERIOR WALLS AT 48" MAXIMUM CENTERS.
- 6. ALL FIELD CUTTING OF LIGHT-GAUGE MEMBERS SHALL BE COMPLETED BY SAWING OR SHEARING. TORCH CUTTING IS NOT ACCEPTABLE.
- 7. STUDS OR OTHER COLD-FORMED MEMBERS SHALL NOT BE NOTCHED, COPED, OR SPLICED, UNLESS NOTED OTHERWISE.
- 8. ALL STUDS SHALL BE FULLY SEATED FOR FULL END BEARING ON BOTTOM TRACK.
- 9. TOP TRACKS AT THE TOP OF STUDS ANCHORED TO BOTTOM SIDE OF STRUCTURAL COMPONENTS SHALL ALLOW FOR A 1" VERTICAL DEFLECTION WITHOUT TRANSFERRING VERTICAL LOAD TO
- 10. EXTERIOR WALL FRAMING SHALL CONSIST OF 600S162-43 (MIN.) STUDS AND TOP AND BOTTOM OF 43 mil (MIN.). CONNECTIONS SHALL BE DESIGNED FOR WIND LOADS INDICATED IN NOTE A.10.
- F. STRUCTURAL STEEL:
- 1. STRUCTURAL STEEL FOR THIS PROJECT HAS BEEN DESIGNED IN ACCORDANCE WITH THE FOURTEENTH EDITION OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "STEEL CONSTRUCTION MANUAL."
- 2. STRUCTURAL STEEL SHALL COMPLY WITH THE FOLLOWING SPECIFICATIONS:

COMPONENT TYPE	STANDARD	YIELD STRENGTH
a. STRUCTURAL STEEL WIDE FLANGE SHAPES:	ASTM A992	Fy = 50 ksi
b. OTHER STRUCTURAL STEEL SHAPES, PLATES, AND BARS:	ASTM A36	Fy = 36 ksi
c. HOLLOW STRUCTURAL SECTIONS (HSS):	ASTM A500 (GRADE B)	Fy = 46 ksi
d. STEEL PIPE:	ASTM A53 (GRADE B)	Fy = 35 ksi
e. ANCHOR RODS:	ASTM F1554	Fy = 36 ksi

- 3. WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1, "STRUCTURAL WELDING CODE STEEL," LATEST EDITION. WELD ELECTRODES SHALL BE E70XX. PROVIDE 1/4" CONTINUOUS FILLET WELDS UNLESS NOTED OTHERWISE.
- 4. ALL INTERIOR STEEL SHALL BE SHOP PRIMED IN ACCORDANCE WITH SSPC PA 1. IF FLASH RUST OCCURS, RE-CLEAN THE SURFACE PRIOR TO APPLICATION OF PRIMER AND PAINT. APPLY PRIMER IN ACCORDANCE WITH SPE-P1 OF AISC 420 OR APPROVED EQUAL NACE OR SSPC TO A MINIMUM DRY FILM THICKNESS OF 2.0 mil.
- 5. ALL EXTERIOR STEEL SHALL BE PRE-FINISHED GALVANIZED.
- 6. THERE ARE OWNER SPECIFIED RESTRICTIONS ON LOCATION AND SCHEDULING OF ANY WELDING OPERATIONS. COORDINATE WITH POND CONSTRUCTORS.
- G. POST INSTALLED ANCHORS:
- ALL POST INSTALLED ANCHORS SHALL BE INSTALLED WITH THE PRODUCT DIAMETER AND EMBEDMENT SHOWN IN THE DETAILS.
- 2. INSTALL PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS. CONTRACTOR SHALL CONTACT MANUFACTURER'S REPRESENTATIVE FOR PRODUCT INSTALLATION TRAINING.
- 3. REFER TO THE PROJECT BUILDING CODE AND/OR EVALUATION REPORT FOR SPECIAL INSPECTIONS AND PROOF LOAD REQUIREMENTS.
- 4. THREADED RODS SHALL HAVE A MINIMUM YIELD STRENGTH OF 36 ksi.
- 5. SUBSTITUTION REQUESTS FOR PRODUCTS OTHER THAN THOSE LISTED BELOW MAY BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER OF RECORD FOR REVIEW. SUBSTITUTIONS WILL ONLY BE CONSIDERED FOR PRODUCTS HAVING A RESEARCH REPORT RECOGNIZING THE PRODUCT FOR THE APPROPRIATE APPLICATION UNDER THE PRODUCT BUILDING CODE. SUBSTITUTION REQUESTS SHALL INCLUDE CALCULATIONS THAT DEMONSTRATE THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE EQUIVALENT PERFORMANCE VALUES OF THE DESIGN BASIS PRODUCT.
- 6. ADHESIVE ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS AS WELL AS STATIC AND CYCLIC LOADING, HORIZONTAL AND OVERHEAD INSTALLATIONS, LONG-TERM CREEP AT ELEVATED TEMPERATURES, STATIC LOADINGS AT ELEVATED TEMPERATURES. DESIGN ADHESIVE BOND STRENGTH HAS BEEN BASED ON ACI 355.4 TEMPERATURE CATEGORY B WITH INSTALLATIONS INTO DRY HOLES DRILLED USING A CARBIDE DRILL BIT INTO CRACKED CONCRETE THAT HAS CURED FOR AT LEAST 21 DAYS. ADHESIVE ANCHORS REQUIRING CERTIFIED INSTALLATIONS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER PER ACI 318-14 D.9.2.2. INSTALLATIONS REQUIRING CERTIFIED INSTALLERS SHALL BE INSPECTED PER ACI 318-14 D.9.2.4. PRE-APPROVED PRODUCTS INCLUDE:

	MANUFACTURER	PRODUCT	ICC REPORT
BASIS OF DESIGN	HILTI	HIT-RE 500-V3 WITH THREADED ROD	ESR-3814
PRE-APPROVED ALTERNATE	HILTI	HIT-HY 200R WITH HIT-Z ANCHORS	ESR-3187
ANCHORS	SIMPSON STRONG-TIE	SET-XP WITH THREADED ROD	ESR-2508
	POWERS FASTENERS	PE1000+ WITH THREADED ROD	ESR-2583

7. ONLY EXPANSION ANCHORS EVALUATED BY THE ICC EVALUATION SERVICE, INC. (ICC-ES) OR THE INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS (IAMPO) WITH A PUBLISHED EVALUATION REPORT SHALL BE APPROVED FOR USE. ANCHORS THAT ARE TO BE INSTALLED IN EXISTING CONCRETE SHALL BE EVALUATED BY ICC-ESS ACCORDING TO ACCEPTANCE CRITERIA 193 AND SHALL BE SPECIFICALLY APPROVED FOR USE IN CONCRETE. ALL ANCHORS SHALL BE APPROVED FOR SEISMIC AND WIND LOADS.

H. SPECIAL INSPECTIONS:

- QUALIFIED SPECIAL INSPECTORS SHALL BE RETAINED TO PERFORM INSPECTIONS REQUIRED BY THE BUILDING CODE. SEE SHEET S-002 FOR THE SPECIAL INSPECTIONS SCHEDULES.
- 2. ANY FIELD OBSERVATIONS OR OTHER WORK PROGRESS REVIEW PERFORMED BY THE STRUCTURAL ENGINEER SHALL NOT BE CONSTRUED AS A SPECIAL INSPECTION.

ABBREVIATION KEY

@	AT	ksi	1,000 POUNDS PER SQUARE INC
ARCH.	ARCHITECTURAL	lb	POUNDS
B/	BOTTOM OF	L.L.	LIVE LOAD
BLDG.	BUILDING	LLH	LONG LEG HORIZONTAL
ВМ	BEAM	LLV	LONG LEG VERTICAL
BTM.	воттом	MAX.	MAXIMUM
C.L.	CENTERLINE	MECH.	MECHANICAL
CIP	CAST-IN-PLACE	MFR.	MANUFACTURER
CJ	CONTROL JOINT	MIN.	MINIMUM
CLR.	CLEAR	mph	MILES PER HOUR
CMU	CONCRETE MASONRY UNIT	N/A	NOT APPLICABLE
COL.	COLUMN	N.I.C.	NOT IN CONTRACT
CONC.	CONCRETE	N.S.	NEAR SIDE
CONST.	CONSTRUCTION	N.T.S.	NOT TO SCALE
CONT.	CONTINUOUS	0/0	OUT TO OUT
DEG.	DEGREE	O.C.	ON CENTER
DIA.	DIAMETER	OPN'G	OPENING
DWG.	DRAWING	OPP.	OPPOSITE
DWL.	DOWEL	PL.	PLATE
E.E.	EACH END	PJF	PRE-MOLDED JOINT FILLER
E.F.	EACH FACE	psf	POUNDS PER SQUARE FOOT
ELEC.	ELECTRICAL	psi	POUNDS PER SQUARE INCH
ELEV.	ELEVATION	REINF.	REINFORCEMENT
E.O.R.	ENGINEER OF RECORD	REQ'D	REQUIRED
E.O.S.	EDGE OF SLAB	SIM.	SIMILAR
EQ.	EQUAL	SQ.	SQUARE
E.S.	EACH SIDE	STD.	STANDARD
E.W.	EACH WAY	STL.	STEEL
EXIST.	EXISTING	S.W.	SELF-WEIGHT
EXP.	EXPANSION	T&B	TOP AND BOTTOM
FT.	FEET	T/	TOP OF
FTG	FOOTING	TOS	TOP OF STEEL
ga	GAUGE	TYP.	TYPICAL
GALV.	GALVANIZED	U.N.O.	UNLESS NOTED OTHERWISE
HOR.	HORIZONTAL	VERT.	VERTICAL
HSS	HOLLOW STRUCTURAL SECTION	w/	WITH
IN.	INCH	W/C	WATER TO CEMENT
INT.	INTERIOR	W.P.	WORKING POINT
K	KIPS	WWR	WELDED WIRE REINFORCEMEN

SMYRNA UPGRADES

SMYRNA UPGRADES

EAW

CHECKED BY:

EAW

CHECKED BY:

WPH

SUBMITTED BY:

WHO

SUBMITTED BY:

NWH

SUBMITTED BY:

SUBMITED BY:

SUBMITTED BY:

SU

SHEET ID

		a.
		b.
D		C.
		d.
	6.	STF
С		a.
		b.
		C.
В	7.	INS CO ACC TAE
	170	5.2.2
	1.	MA DE
		a.
	2.	b. INS
	<u>NO</u> a.	ΓES: WH RE

		0=5\40=	
	MATERIAL / ACTIVITY VERIFY FABRICATION/QUALITY CONTROL	SERVICE IN-PLANT REVIEW	EXTENT PERIODIC
	PROCEDURES	TIVE LATITUDE VIEW	T LINIODIO
170	05.2 STEEL CONSTRUCTION		
	MATERIAL / ACTIVITY	SERVICE	EXTENT
1.	FABRICATOR AND ERECTOR DOCUMENTS (VERIFY REPORTS AND CERTIFICATES AS LISTED IN AISC 360, CHAPTER N, PARAGRAPH 3.2 FOR COMPLIANCE WITH CONSTRUCTION DOCUMENTS)	SUBMITTAL REVIEW	EACH SUBMITTAL
2.	MATERIAL VERIFICATION OF STRUCTURAL STEEL	SHOP AND FIELD INSPECTION	PERIODIC
3.	EMBEDMENTS (VERIFY DIAMETER, GRADE, TYPE, LENGTH, EMBEDMENT. SEE 1705.3 FOR ANCHORS)	FIELD INSPECTION	PERIODIC
4.	VERIFY MEMBER LOCATIONS, BRACES, STIFFENERS, AND APPLICATION OF JOINT DETAILS AT EACH CONNECTION COMPLY WITH CONSTRUCTION DOCUMENTS	FIELD INSPECTION	PERIODIC
5.	STRUCTURAL STEEL WELDING:		
	a. INSPECTION TASKS PRIOR TO WELDING (OBSERVE, OR PERFORM FOR EACH WELDED JOINT OR MEMBER, THE QA TASKS LISTED IN AISC 360, TABLE N5.4-1)	SHOP AND FIELD INSPECTION	OBSERVE OR PERFORM AS NOTED
	b. INSPECTION TASKS DURING WELDING (OBSERVE, OR PERFORM FOR EACH WELDED JOINT OR MEMBER, THE QA TASKS LISTED IN AISC 360, TABLE N5.4-2)	SHOP AND FIELD INSPECTION	OBSERVE
	c. INSPECTION TASKS AFTER WELDING (OBSERVE, OR PERFORM FOR EACH WELDED JOINT OR MEMBER, THE QA TASKS LISTED IN AISC 360, TABLE N5.4-3)	SHOP AND FIELD INSPECTION	OBSERVE OR PERFORM AS NOTED
	d. NONDESTRUCTIVE TESTING (NDT) OF WELDED JOINTS: SEE COMMENTARY		
	1.) COMPLETE PENETRATION GROOVE WELDS 5/16" OR GREATER IN RISK CATEGORY III OR IV	SHOP OR FIELD ULTRASONIC TESTING - 100%	PERIODIC
	2.) THERMALLY CUT SURFACES OF ACCESS HOLES WHEN MATERIAL t > 2"	SHOP OR FIELD MAGNETIC PARTICLE OR PENETRANT TESTING	PERIODIC
	3.) WELDED JOINTS SUBJECT TO FATIGUE WHEN REQUIRED BY AISC 360, APPENDIX 3 TABLE A-3.1	SHOP OR FIELD RADIOGRAPHIC OR ULTRASONIC TESTING	PERIODIC
	4.) FABRICATOR'S NDT REPORTS WHEN FABRICATOR PERFORMS NDT	VERIFY REPORTS	EACH SUBMITTAL
6.	STRUCTURAL STEEL BOLTING:	SHOP AND FIELD INSPECTION	
	a. INSPECTION TASKS PRIOR TO BOLTING (OBSERVE, OR PERFORM TASKS FOR EACH BOLTED CONNECTION, IN ACCORDANCE WITH QA TASKS LISTED IN AISC 360, TABLE N5.6-1)		OBSERVE OR PERFORM AS NOTED
	b. INSPECTION TASKS DURING BOLTING (OBSERVE THE QA TASKS LISTED IN AISC 360, TABLE N5.6-2)		OBSERVE
	1.) PRE-TENSIONED AND SLIP-CRITICAL JOINTS		
	a.) TURN-OF-NUT WITH MATCHING MARKINGS		PERIODIC
	b.) DIRECT TENSION INDICATOR		PERIODIC
	c.) TWIST-OFF TYPE TENSION CONTROL BOLT		PERIODIC
	d.) TURN-OF-NUT WITHOUT MATCHING MARKINGS		CONTINUOUS
	e.) CALIBRATED WRENCH		CONTINUOUS
	2.) SNUG-TIGHT JOINTS		PERIODIC
_	c. INSPECTION TASKS AFTER BOLTING (PERFORM TASKS FOR EACH BOLTED CONNECTION IN ACCORDANCE WITH QA TASKS LISTED IN AISC 360, TABLE N5.6-3)		PERFORM
7.	INSPECTION OF STEEL ELEMENTS OF COMPOSITE CONSTRUCTION PRIOR TO CONCRETE PLACEMENT IN ACCORDANCE WITH QA TASKS LISTED IN AISC 360, TABLE N6.1	SHOP AND FIELD INSPECTION AND TESTING	OBSERVE OR PERFORM AS NOTED

170	5.2.2	2 STEEL CONSTRUCTION OTHER THAN STRUCTURAL S	ΓEEL	
		MATERIAL / ACTIVITY	SERVICE	EXTENT
1.		TERIAL VERIFICATION OF COLD-FORMED STEEL CK:		
	a.	IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS	FIELD INSPECTION	PERIODIC
	b.	MANUFACTURER'S CERTIFIED TEST REPORTS	SUBMITTAL REVIEW	EACH SUBMITTAL
2.	INS	SPECTION OF WELDING		
	a.	COLD-FORMED STEEL DECK		
		FLOOR AND ROOF DECK WELDS	FIELD INSPECTION	PERIODIC

WHERE APPLICABLE, SEE ALSO SECTION 1705.11 SPECIAL INSTRUCTIONS FOR SEISMIC RESISTANCE.

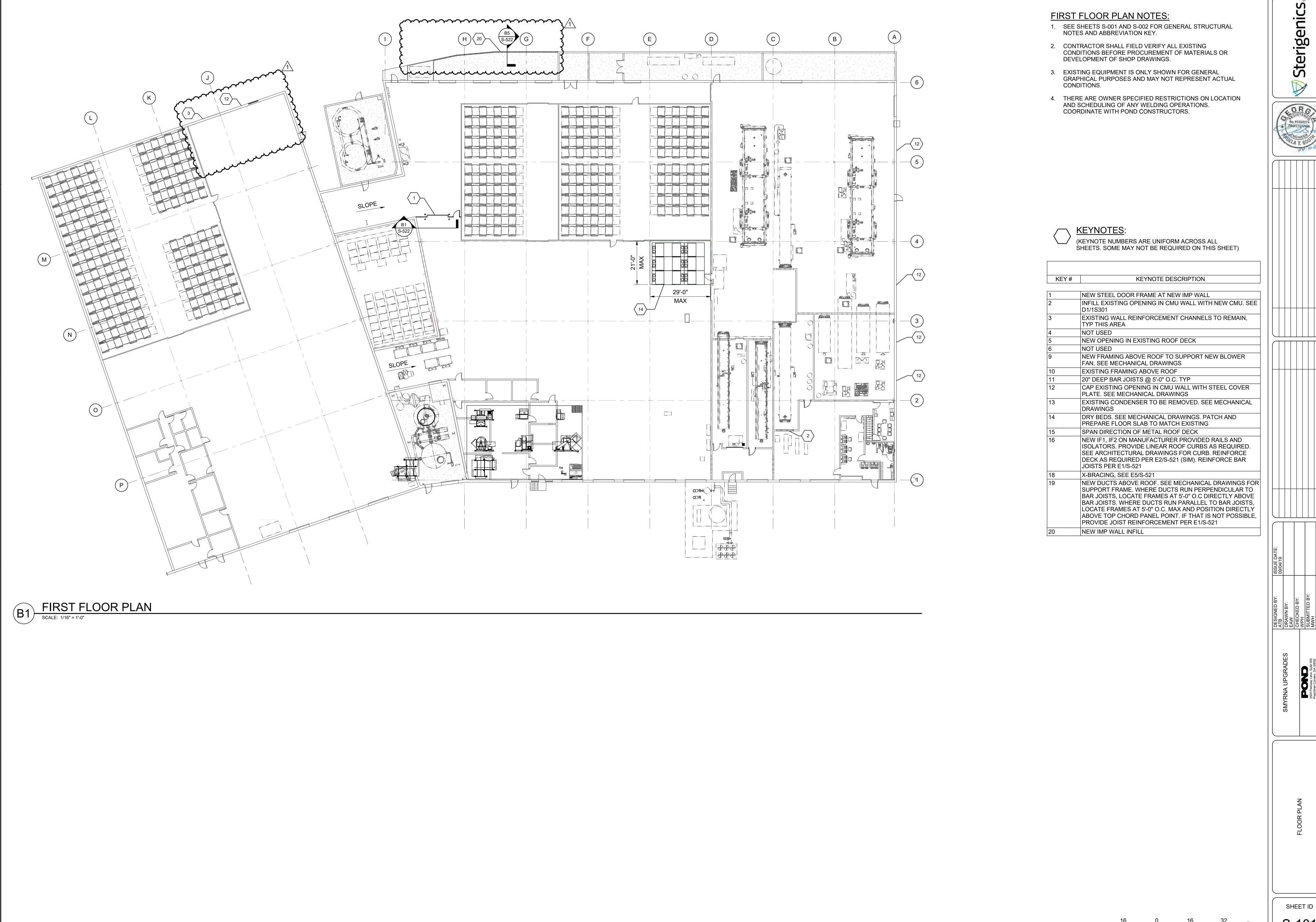
_				
	170	05.3 CONCRETE CONSTRUCTION		
		MATERIAL / ACTIVITY	SERVICE	EXTENT
	1.	INSPECTION OF REINFORCING STEEL AND PLACEMENT	SHOP AND FIELD INSPECTION	PERIODIC
	2.	INSPECTION OF REINFORCING STEEL WELDING IN ACCORDANCE WITH TABLE 1705.2.2 ITEM 2b	SHOP AND FIELD INSPECTION	
	3.	INSPECTION OF ANCHORS CAST IN CONCRETE WHERE ALLOWABLE LOADS HAVE BEEN INCREASED OR WHERE STRENGTH DESIGN IS USED	SHOP AND FIELD INSPECTION	PERIODIC
	4.	INSPECTION OF ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS	SHOP AND FIELD INSPECTION	PERIODIC
	5.	VERIFY USE OF REQUIRED DESIGN MIX	SHOP AND FIELD INSPECTION	PERIODIC
	6.	AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	SHOP AND FIELD INSPECTION	CONTINUOUS
-	7.	INSPECTION OF CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	SHOP AND FIELD INSPECTION	CONTINUOUS
	8.	INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES	SHOP AND FIELD INSPECTION	PERIODIC
	9.	INSPECT FORMWORK FOR SHAPE, LOCATION, AND DIMENSIONS FOR THE CONCRETE MEMBER TO BE FORMED	FIELD INSPECTION	PERIODIC
	NO	TES:		

- a. WHERE APPLICABLE, SEE ALSO SECTION 1705.11 SPECIAL INSTRUCTIONS FOR SEISMIC RESISTANCE.
- b. SPECIFIC REQUIREMENTS FOR SPECIAL INSPECTION SHALL BE INCLUDED IN THE RESEARCH REPORT FOR THE ANCHOR ISSUED BY AN APPROVED SOURCE IN ACCORDANCE WITH ACI 355.2 OR OTHER QUALIFICATIONS PROCEDURES. WHERE SPECIFIC REQUIREMENTS ARE NOT PROVIDED, SPECIAL INSPECTION REQUIREMENTS SHALL BE SPECIFIED BY THE REGISTERED DESIGN PROFESSIONAL AND SHALL BE APPROVED BY THE BUILDING OFFICIAL PRIOR TO THE COMMENCEMENT OF THE WORK.

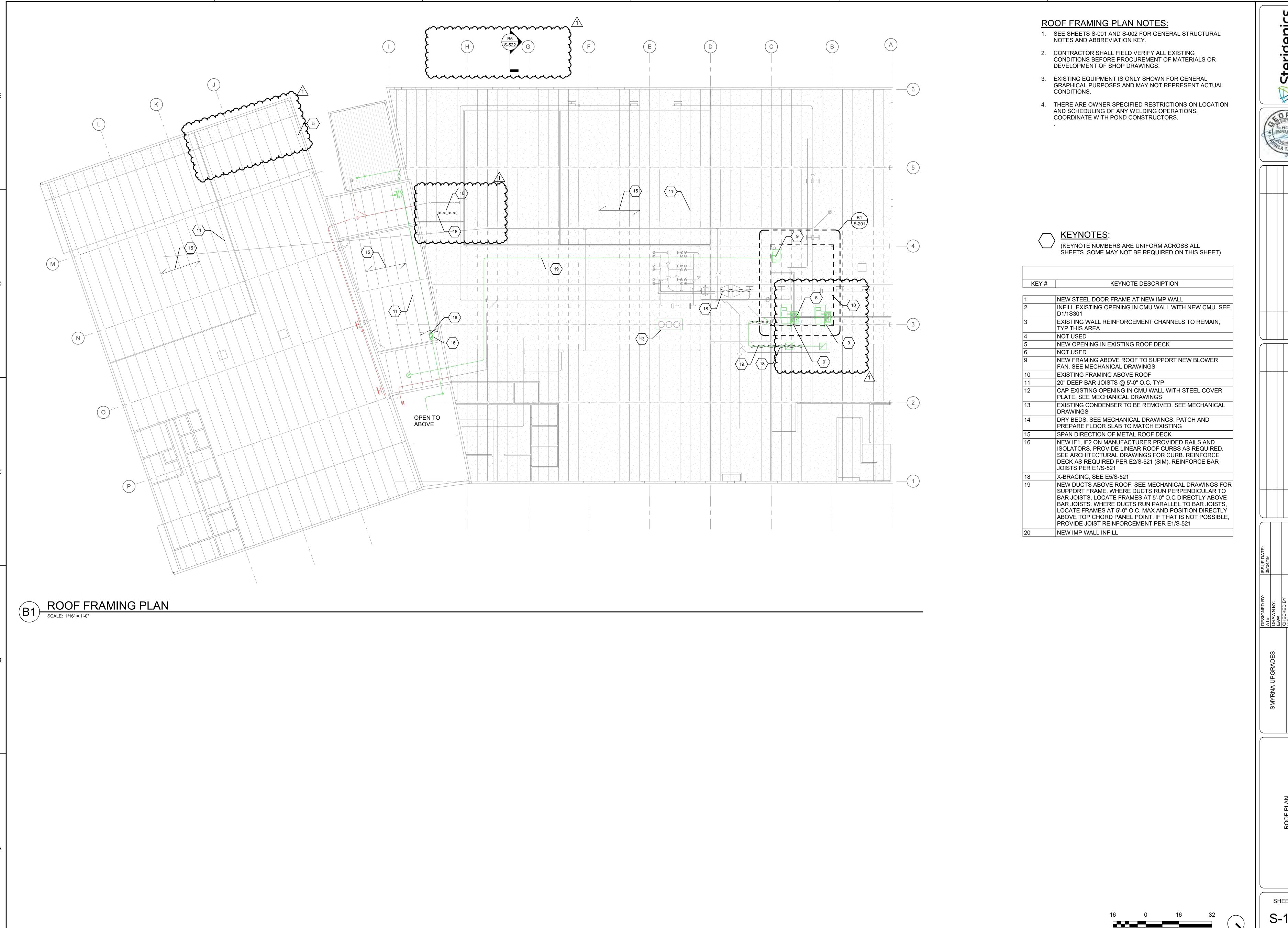
	MATERIAL / ACTIVITY	SERVICE	EXTENT
(A)	LEVEL A, B, AND C QUALITY ASSURANCE:		
	VERIFY COMPLIANCE WITH APPROVED SUBMITTALS	FIELD INSPECTION	PERIODIC
(B)	LEVEL B QUALITY ASSURANCE:		
	1. VERIFY OF I'M AND I'MAC PRIOR TO CONSTRUCTION	TESTING BY UNIT STRENGTH METHOD OR PRISM TEST METHOD	PERIODIC
(C)	LEVEL C QUALITY ASSURANCE:		
	VERIFY OF I'M AND I'MAC PRIOR TO CONSTRUCTION AND FOR EVERY 5000 SF DURING CONSTRUCTION	TESTING BY UNIT STRENGTH METHOD OR PRISM TEST METHOD	PERIODIC
	2. VERIFICATION OF PROPORTIONS OF MATERIALS IN PREMIXED OR BLENDED MORTAR, PRE-STRESSING GROUT, AND GROUT OTHER THAN SELF-CONSOLIDATING GROUT, AS DELIVERED TO THE PROJECT SITE	FIELD INSPECTION	CONTINUOUS
(D)	3. VERIFY PLACEMENT OF MASONRY UNITS LEVEL B AND C QUALITY ASSURANCE:	FIELD INSPECTION	PERIODIC
	VERIFICATION OF SLUMP FLOW AND VISUAL STABILITY INDEX (VSI) OF SELF-CONSOLIDATING GROUT AS DELIVERED TO THE PROJECT	FIELD INSPECTION	CONTINUOUS
	2. VERIFY COMPLIANCE WITH APPROVED SUBMITTALS	FIELD INSPECTION	PERIODIC
	3. VERIFY PROPORTIONS OF SITE-MIXED MORTAR, GROUT, AND PRE-STRESSING GROUT FOR BONDED TENDONS	FIELD INSPECTION	PERIODIC
	4. VERIFY GRADE, TYPE, AND SIZE OF REINFORCEMENT AND ANCHOR BOLTS, AND PRE-STRESSING TENDONS AND ANCHORAGES	FIELD INSPECTION	PERIODIC
	5. VERIFY CONSTRUCTION OF MORTAR JOINTS	FIELD INSPECTION	
	VERIFY PLACEMENT OF REINFORCEMENT, CONNECTORS, AND PRE-STRESSING TENDONS AND ANCHORAGES VERIFY GROUT SPACE PRIOR TO	FIELD INSPECTION	LEVEL B - PERIODIC LEVEL C - CONTINUOL LEVEL B - PERIODIC
	GROUTING	FIELD INSPECTION	LEVEL C - CONTINUOL
	8. VERIFY PLACEMENT OF GROUT AND PRE-STRESSING GROUT FOR BONDED TENDONS	FIELD INSPECTION	CONTINUOUS
	9. VERIFY SIZE AND LOCATION OF STRUCTURAL MASONRY ELEMENTS 10. VERIEV TYPE, SIZE, AND LOCATION OF	FIELD INSPECTION	
	10. VERIFY TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES OR OTHER CONSTRUCTION	FIELD INSPECTION	LEVEL B - PERIODIC
	11. VERIFY WELDING OF REINFORCEMENT (SEE 1705.2.2)	FIELD INSPECTION	CONTINUOUS
	12. VERIFY PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40° F) OR HOT WEATHER (TEMPERATURE ABOVE 90° F)	FIELD INSPECTION	PERIODIC
	13. VERIFY APPLICATION AND MEASUREMENT OF PRE-STRESSING FORCE	FIELD INSPECTION	CONTINUOUS
	14. VERIFY PLACEMENT OF AAC MASONRY UNITS AND CONSTRUCTION OF THIN-BED MORTAR JOINTS (FIRST 5000 SF OF AAC MASONRY)	FIELD INSPECTION	CONTINUOUS
	15. VERIFY PLACEMENT OF AAC MASONRY UNITS AND CONSTRUCTION OF THIN-BED MORTAR JOINTS (AFTER THE FIRST 5000 SF OF AAC MASONRY)	FIELD INSPECTION	LEVEL B - PERIODIC
	16. VERIFY PROPERTIES OF THIN-BED MORTAR FOR AAC MASONRY (FIRST 5000 SF OF AAC MASONRY)	FIELD INSPECTION	CONTINUOUS
	17. VERIFY PROPERTIES OF THIN-BED MORTAR FOR AAC MASONRY (AFTER THE FIRST 5000 SF OF AAC MASONRY)	FIELD INSPECTION	LEVEL B - PERIODIC
	18. PREPARE GROUT AND MORTAR SPECIMENS	FIELD INSPECTION	LEVEL B - PERIODIC
	19. OBSERVE PREPARATION OF PRISMS	FIELD INSPECTION	LEVEL B - PERIODIC
170	5.11.5 ARCHITECTURAL COMPONENTS SPECIAL INSPECT	TIONS FOR SEISMIC R	ESISTANCE
	MATERIAL / ACTIVITY	SERVICE	EXTENT
1.	INSPECTION DURING THE ERECTION AND FASTENING OF EXTERIOR CLADDING AND INTERIOR AND EXTERIOR VENEER	FIELD INSPECTION	N PERIODIC
2.	INSPECTION DURING THE ERECTION AND FASTENING OF EXTERIOR CLADDING AND INTERIOR AND EXTERIOR NON-BEARING WALLS	FIELD INSPECTION	N PERIODIC
700	5.11.6 MECHANICAL AND ELECTRICAL COMPONENTS SPE	CIAL INSDECTIONS F	OR SEISMIC DESISTAN
105			
1.	MATERIAL / ACTIVITY INSPECTION DURING THE ANCHORAGE OF ELECTRICAL EQUIPMENT FOR EMERGENCY OR STANDBY POWER SYSTEMS	SERVICE FIELD INSPECTIO	EXTENT ON PERIODIC
2.	INSPECTION DURING THE ANCHORAGE OF OTHER ELECTRICAL EQUIPMENT	FIELD INSPECTIO	N PERIODIC
3.	INSPECTION DURING THE INSTALLATION AND ANCHORAGE OF PIPING SYSTEMS DESIGNED TO CARRY HAZARDOUS MATERIALS, AND THEIR ASSOCIATED MECHANICAL EQUIPMENT	FIELD INSPECTIO	ON PERIODIC
4.	INSPECTION DURING THE INSTALLATION AND ANCHORAGE OF HVAC DUCTWORK THAT WILL CONTAIN HAZARDOUS MATERIALS	FIELD INSPECTIO	N PERIODIC
5.	INSPECTION DURING THE INSTALLATION AND ANCHORAGE OF VIBRATION ISOLATION SYSTEMS	FIELD INSPECTIO	N PERIODIC
	, to Lot Violation look hold of a lema	1	

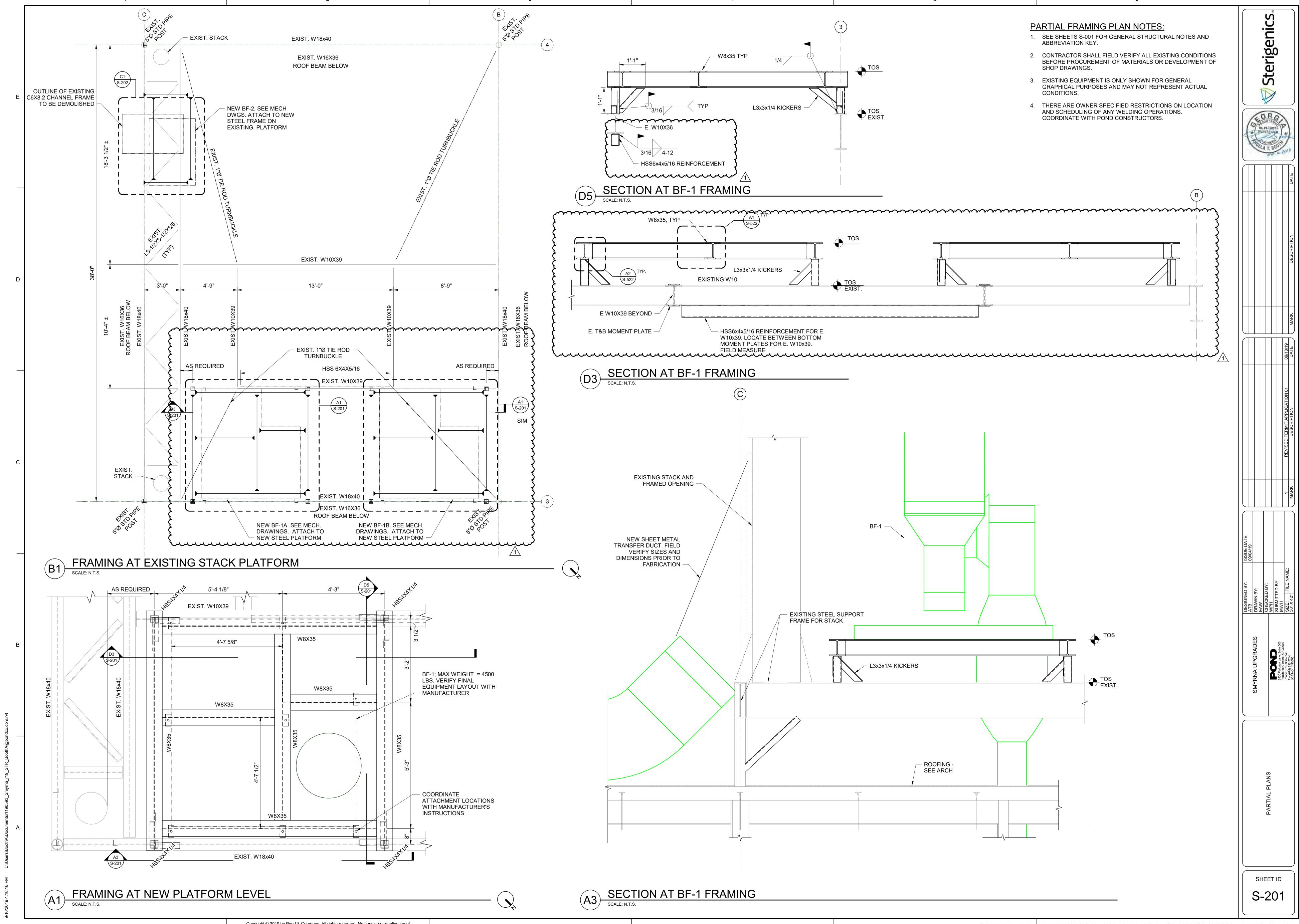
Sterigen	ס
No PEGGESSION ENGINEE	
	DA.
	DESCRIPTION
	MARK
	09/10/19 DATE
	REVISED PERMIT APPLICATION 01 DESCRIPTION
	1 MARK
ISSUE DATE: 09/04/19	ME:

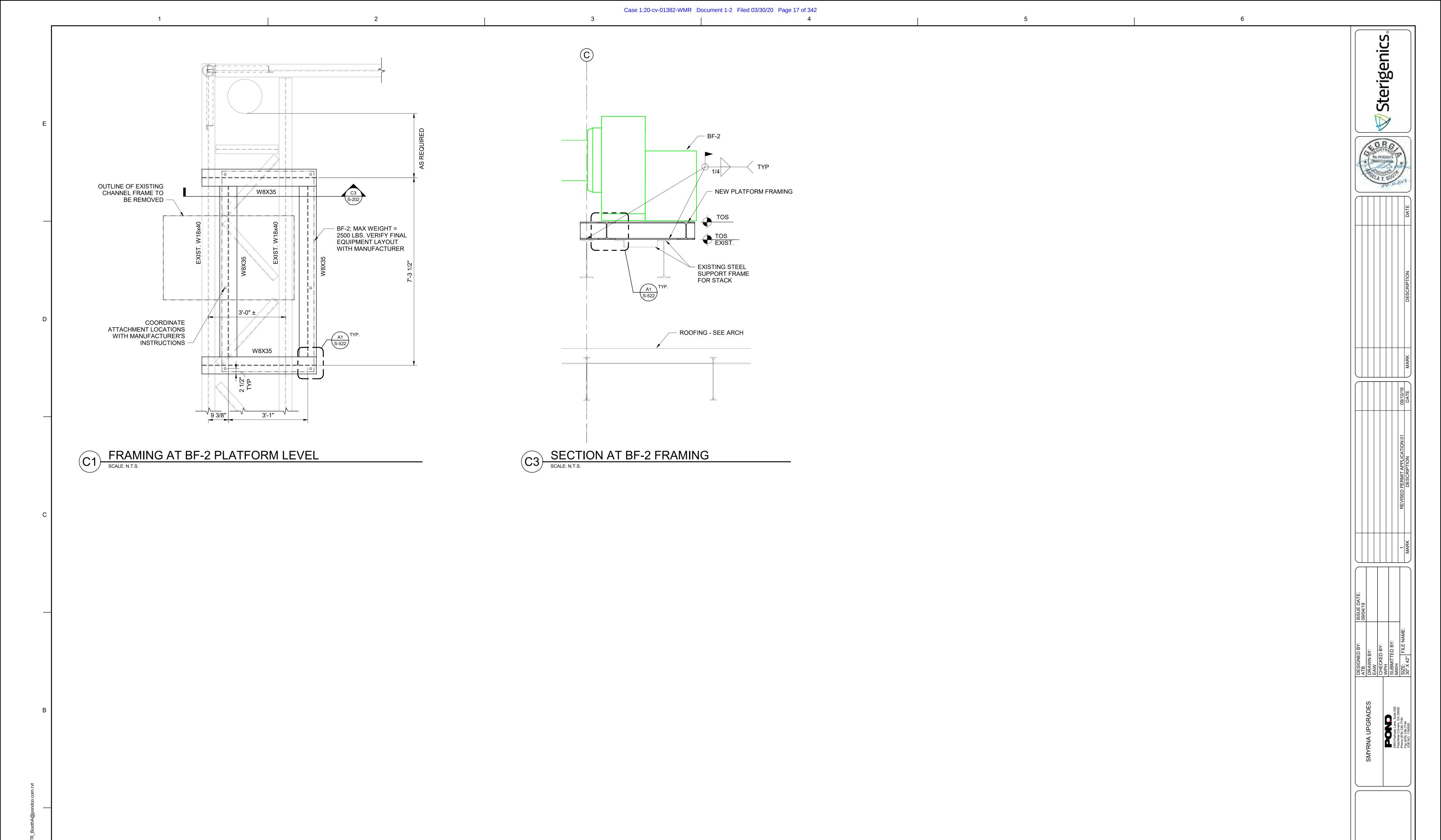
SHEET ID



Copyright © 2019 by Pond & Company. All rights reserved. No copying or duplication of these documents is allowed without the express written agreement of Pond & Company.



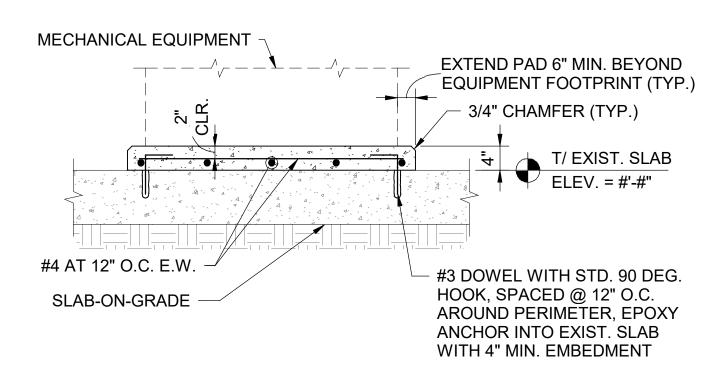




SHEET ID S-202

CELL SOLID IF REQ'D.

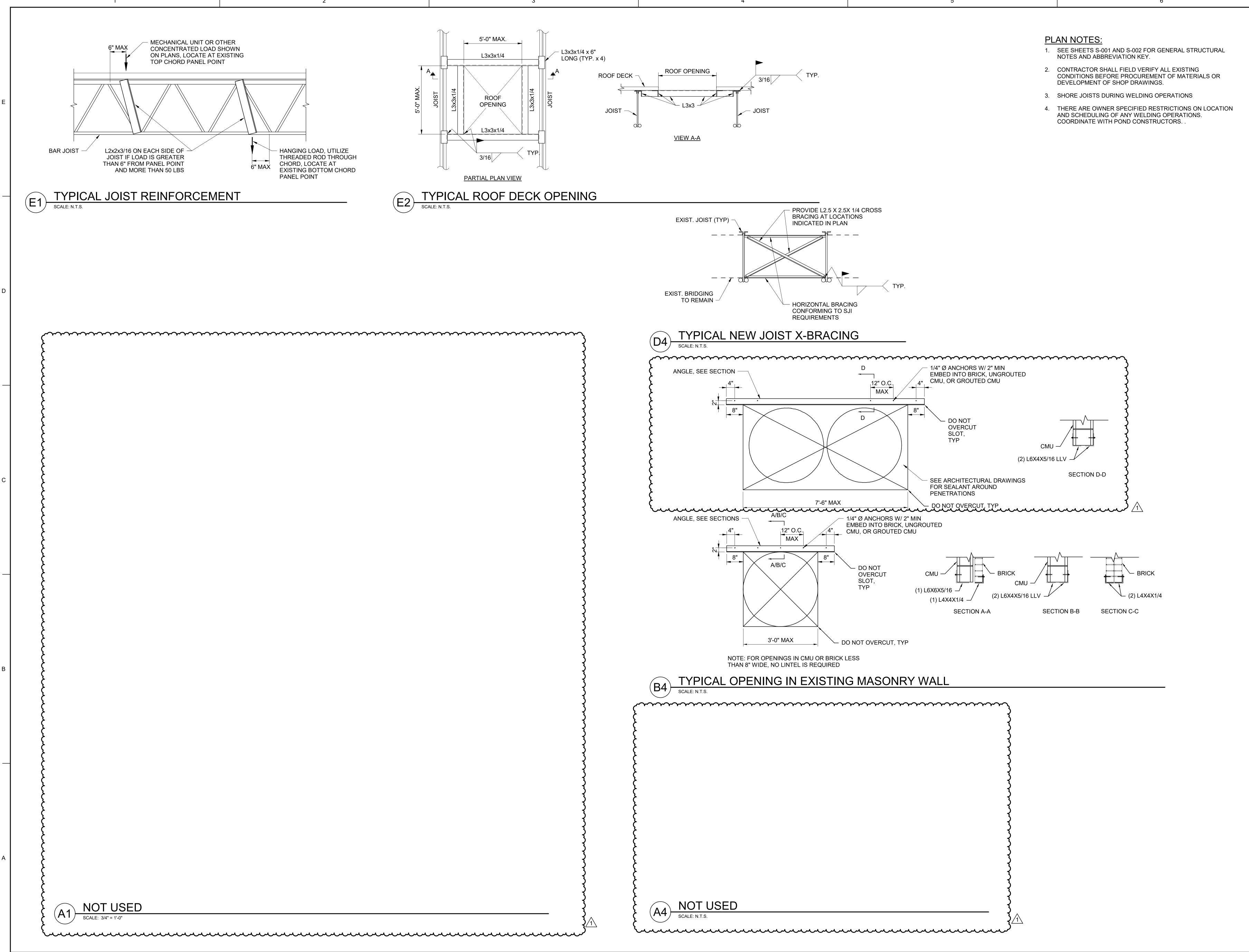
INTERIOR CMU WALL FULL INFILL SCALE: N.T.S.



TYPICAL HOUSEKEEPING PAD (AS REQUIRED)

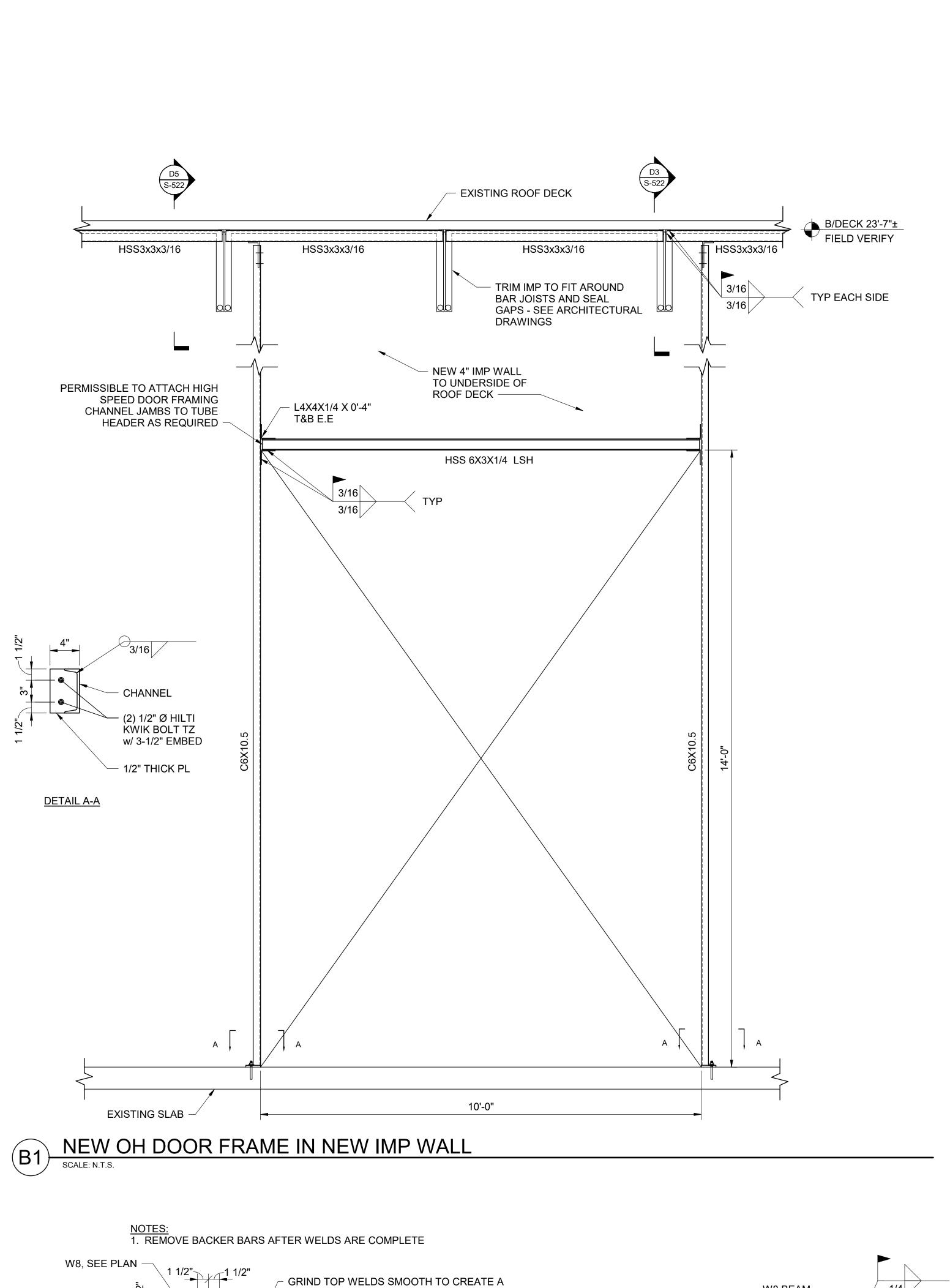
Steriger

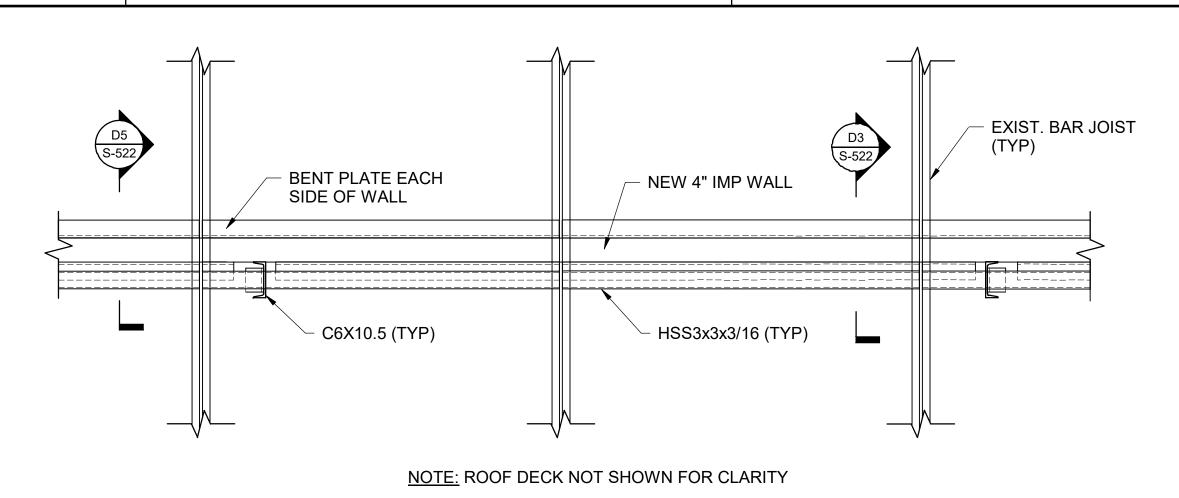
SHEET ID S-301





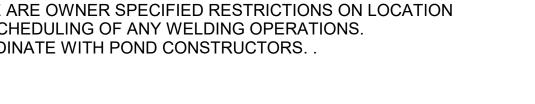
SHEET ID S-521



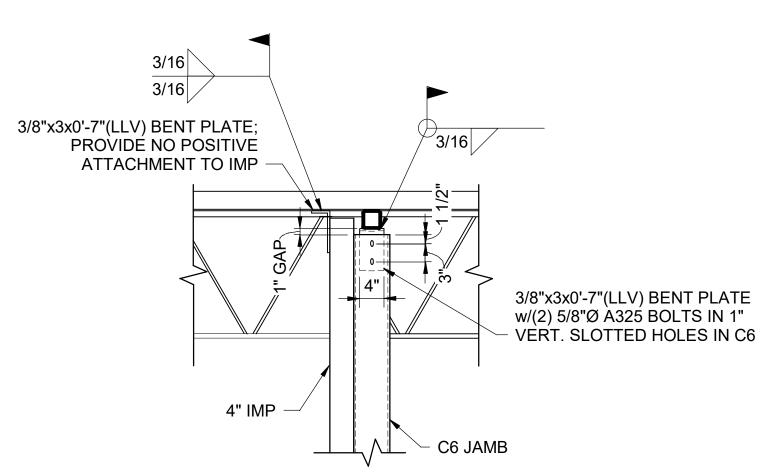


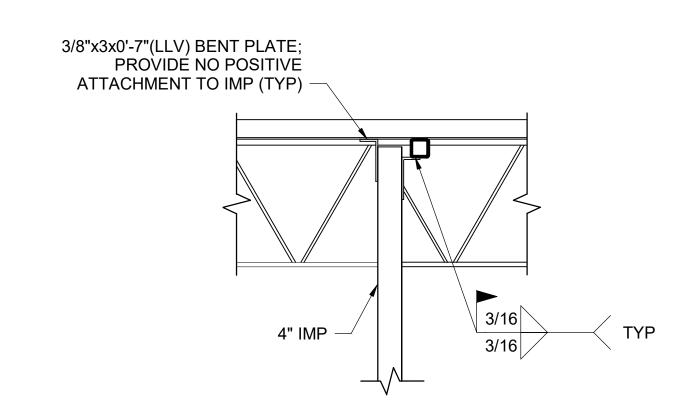
PLAN NOTES:

- 1. SEE SHEETS S-001 AND S-002 FOR GENERAL STRUCTURAL NOTES AND ABBREVIATION KEY.
- 2. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS BEFORE PROCUREMENT OF MATERIALS OR DEVELOPMENT OF SHOP DRAWINGS.
- 3. SHORE JOISTS DURING WELDING OPERATIONS
- 4. THERE ARE OWNER SPECIFIED RESTRICTIONS ON LOCATION AND SCHEDULING OF ANY WELDING OPERATIONS. COORDINATE WITH POND CONSTRUCTORS.



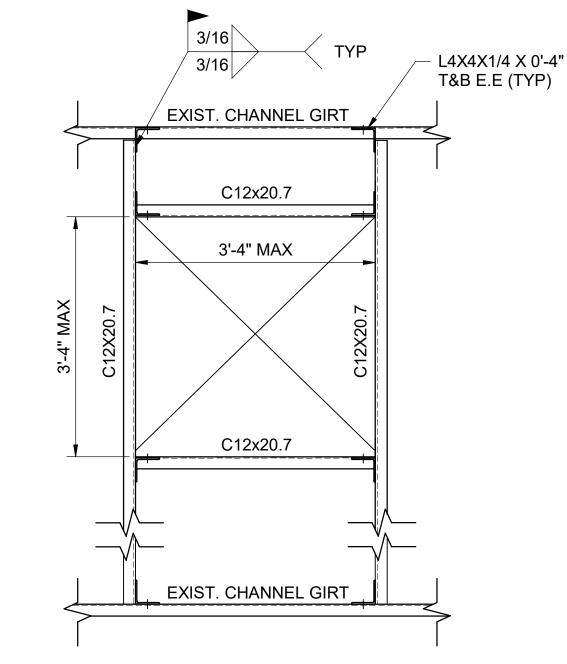
NEW OH DOOR FRAME IN NEW IMP WALL



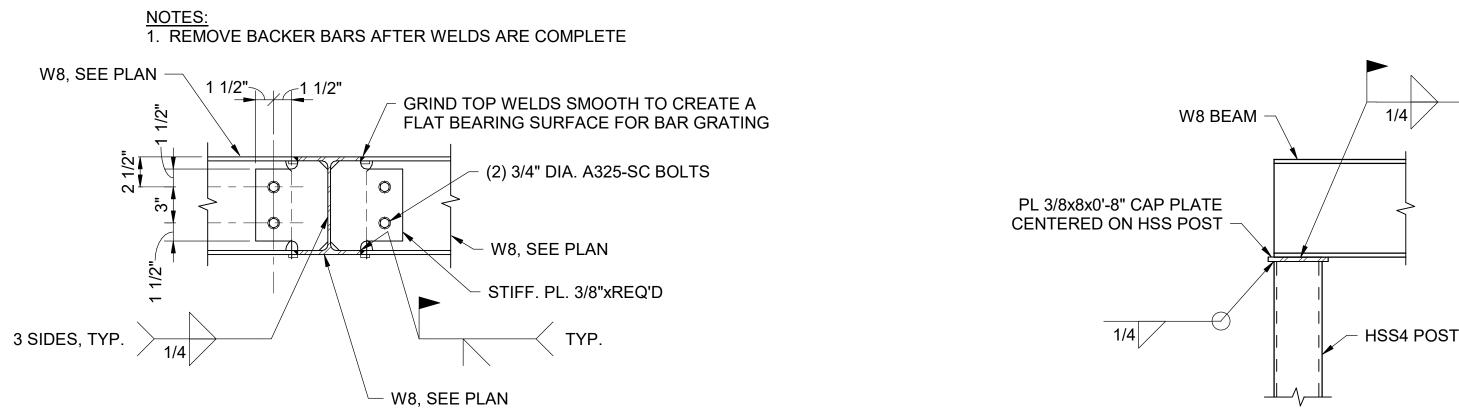


D3 JAMB AND WALL CONN. TO BAR JOIST SCALE: N.T.S.





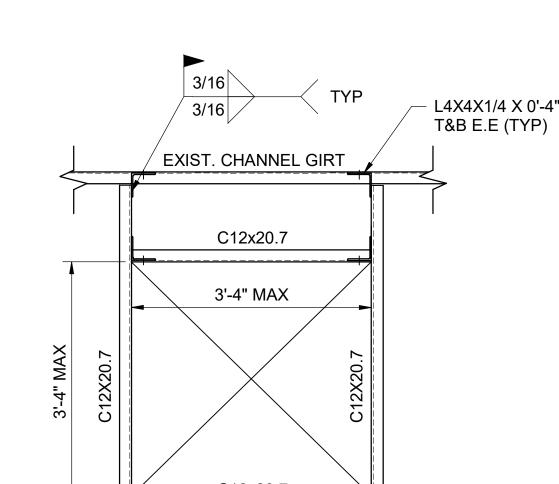
NEW PENETRATION IN IMP WALL

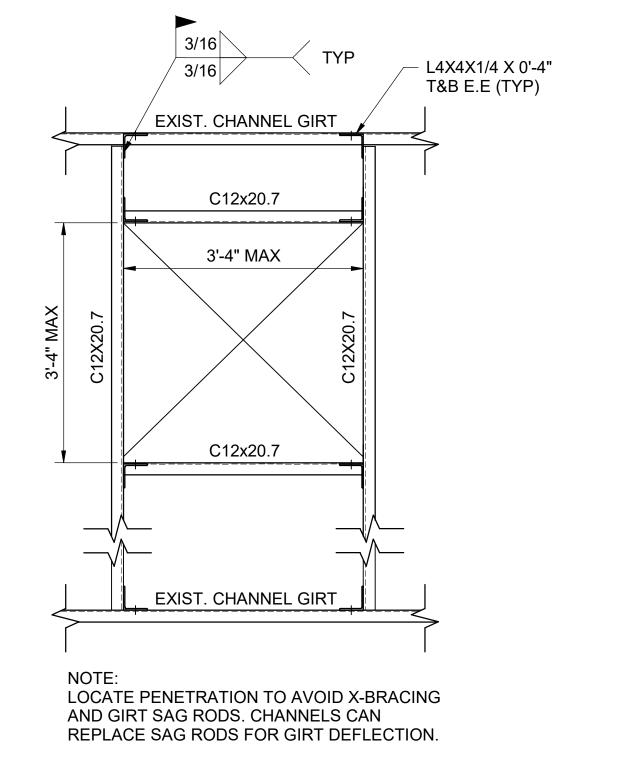


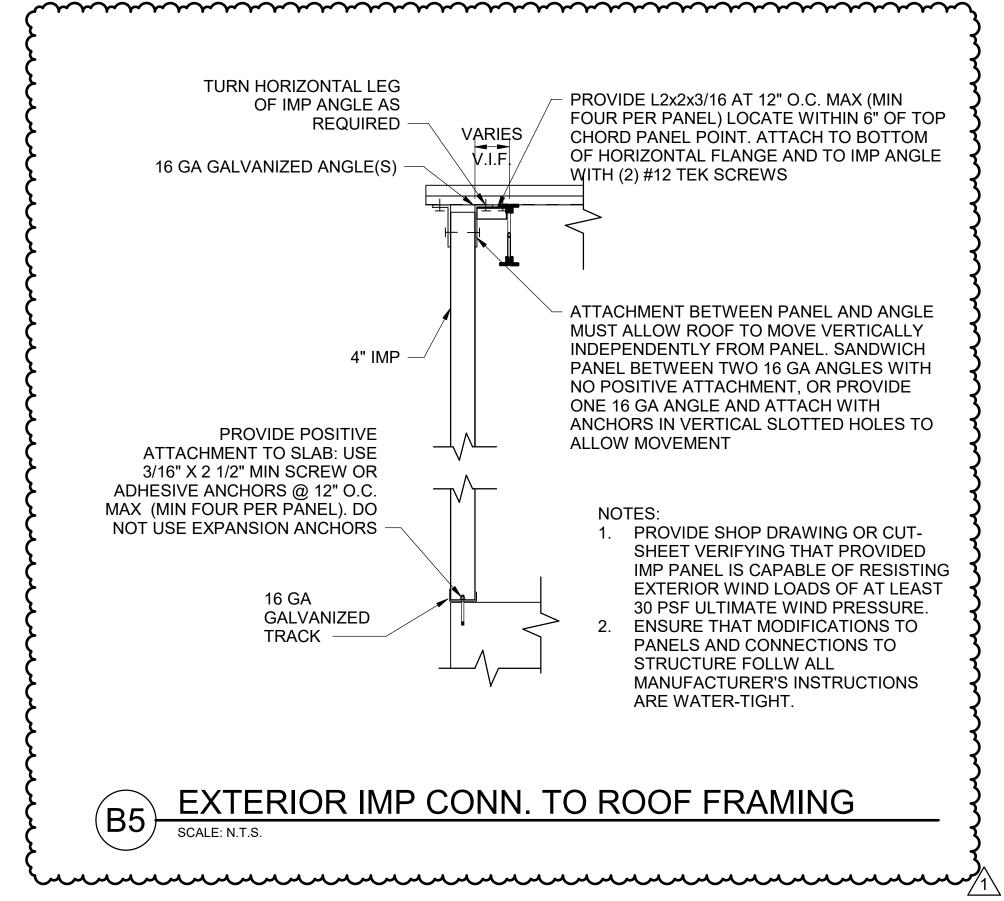
TYPICAL BEAM-TO-BEAM MOMENT CONNECTION

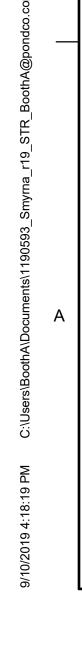
TYPICAL BEAM TO POST CONNECTION

SHEET ID S-522









- 1. MECHANICAL WORK SHALL BE IN COMPLIANCE WITH 2009 IBC AND 2009 IMC.
- 2. INSTALLATION OF HVAC WORK SHALL BE COORDINATED WITH OTHER TRADES BEFORE ANY INSTALLATION IS MADE. DUCTWORK SHOWN ON PLANS IS SCHEMATIC. DUCTWORK SHALL BE INSTALLED TIGHT TO STRUCTURE. ALL TRANSITIONS, ELBOWS, ETC. REQUIRED TO AVOID CONFLICTS & MAXIMIZE CEILING HEIGHTS. EQUIPMENT, PIPING OR DUCTWORK INTERFERING WITH OTHER TRADES SHALL BE RELOCATED AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER.
- 3. COORDINATE MECHANICAL AND ELECTRICAL SUCH THAT MECHANICAL PIPING, DUCTWORK AND EQUIPMENT IS NOT LOCATED OVER OR ABOVE ANY ELECTRICAL, COMMUNICATIONS, OR DATA EQUIPMENT.
- 4. WRITTEN DIMENSIONS ON DRAWINGS SHALL HAVE PRECEDENCE OVER SCALED DIMENSIONS.
- 5. EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S APPROVED PUBLISHED LITERATURE.
- 6. INSTALLATION OF EQUIPMENT SHALL PERMIT ACCESSIBILITY FOR SERVICE AND/OR REPLACEMENT.
- 7. CEILING-MOUNTED EQUIPMENT SHALL BE INSTALLED IN SUCH A MANNER THAT LIGHTS, PIPING, DUCTWORK, ETC., DO NOT BLOCK ACCESS TO EQUIPMENT AND RELATED ACCESSORIES.
- 8. COORDINATE ALL WALL, FLOOR AND ROOF PENETRATIONS WITH THE GENERAL CONTRACTOR.
- 9. CAULK WITH SILICONE ALL GAPS BETWEEN WALL, CEILING AND FLOOR OPENINGS AND HVAC EQUIPMENT PENETRATIONS. THE HVAC CONTRACTOR SHALL PATCH LARGE GAPS BEFORE CAULKING IS APPLIED.
- 10. PROVIDE SUPPLEMENTAL STEEL MEMBERS REQUIRED TO SUPPORT HVAC EQUIPMENT FROM MAIN STRUCTURE UNLESS SPECIFICALLY NOTED OTHERWISE.
- 11. DUCTWORK AIR DISTRIBUTION SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH SMACNA STANDARDS AND THE PRESSURE CLASSIFICATION OF EACH INDIVIDUAL DUCTWORK SYSTEM, NO LESS THAN 20 IN. W.G., SEAL CLASS A. DUCT SIZES SHOWN ON DRAWINGS ARE INSIDE CLEAR DIMENSIONS. EXCEPTION: OUTSIDE AIR DUCT MAY BE CONSTRUCTED TO A 4 IN. W.G. PRESSURE CLASSIFICATION.
- 12. GRADUATED VOLUME DAMPERS SHALL BE PROVIDED AT EACH NEW MAIN BRANCH TAKE-OFF AND IN SUCH OTHER LOCATIONS WHERE REQUIRED TO PROPERLY BALANCE THE SYSTEM.
- 13. INSTRUMENT TEST HOLES SHALL BE PROVIDED IN AIR DISTRIBUTION SYSTEMS WHEREVER VOLUME DAMPERS ARE SHOWN.
- 14. SQUARE ELBOWS SHALL ONLY BE USED WHERE SPACE LIMITATIONS PREVENT USE OF 1.5 RADIUS ELBOW AND ONLY UPON APPROVAL OF ENGINEER. PROVIDE TURNING VANES IN ALL 45° AND 90° SQUARE ELBOWS. TURNING VANES SHALL BE SINGLE THICKNESS TYPE WITHOUT RAILING EDGE. IF TURNING VANES LONGER THAN 36 INCHES ARE REQUIRED, THEY SHALL BE DOUBLE THICKNESS TYPE FOR STRENGTH.
- 15. THE HVAC CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SHEETMETAL TRANSITIONS AT AIR HANDLING UNITS, HEAT PUMP UNITS, FANS, AND OTHER SIMILAR HVAC EQUIPMENT. FLEXIBLE DUCT CONNECTORS OR SOUND ATTENUATION DEVICES SHALL BE USED ON CONNECTION TO FAN EQUIPMENT TO REDUCE NOISE TRANSFER INTO OCCUPIED SPACES.
- 16. FURNISH ACCESS PANELS TO ACCESS ALL DAMPERS, EQUIPMENT, AND VALVES LOCATED ABOVE HARD CEILINGS OR IN WALLS. ACTUAL NUMBE SHALL BE FIELD DETERMINED.
- 17. PROVIDE HOUSEKEEPING PADS, SECUREMENTS, AND ROOF CURBS AS NEEDED FOR MECHANICAL EQUIPMENT.
- 18. DIMENSIONS SHOWN FOR DIFFUSERS AND GRILLES ARE NECK DIMENSIONS.
- 19. TEST AND BALANCE TO DOCUMENT AS-BUILT FLOWS AND POSITIONS IN DEGREES OPEN OF VOLUME DAMPERS.

OFNIEDAL MECH ADDDEN/IATIONIC

<u>GENE</u>	ERAL MECH. ABBREVIATIONS
@	AT
@ &	AND
AFF	ABOVE FINISHED FLOOR
A/C	ABOVE CEILING
AC	AIR CONDITIONER
AD	AUTOMATIC DAMPER
	ADJUSTABLE
	AIRFLOW MEASURING STATION
	ANNUAL FUEL UTILIZATION EFFICIENCY
_	
_	AIR HANDLING UNIT
AMCA	AIR MOVEMENT & CONTROL ASSOCIATION
ARCH	ARCHITECTURAL OR ARCHITECT
	AIR SEPARATOR
	AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR CONDITIONING ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AUX.	AUXILIARY
	AMERICAN WELDING SOCIETY
AWG	AMERICAN WIRE GAUGE
BD	BACKDRAFT DAMPER
BLDG	BUILDING
B/F, B/S	BELOW FLOOR, BELOW SLAB
	BRITISH THERMAL UNITS, BTUs PER HOUR
CAV	CONSTANT AIR VOLUME
CCC	CLOSED CIRCUIT COOLER
CD	CONDENSATE DRAIN LINE
	CUBIC FEET PER MINUTE
CLG	COOLING
CMU	CONCRETE MASONRY UNIT
CO	CLEANOUT
CO2	CARBON DIOXIDE
	CONCRETE
	CONNECT, CONNECTING, CONNECTION
CONT.	CONTINUED
CONT.	COEFFICIENT OF PERFORMANCE
	CONDENSING UNIT
	DEPTH
	DRY BULB (TEMPERATURE)
	DECIBELS
	DIRECT DIGITAL CONTROLS
	DIAMETER
DIV	
	DOWN
dP, PD	DELTA PRESSURE, PRESSURE DROP DUCTLESS SPLIT CONDENSING UNIT
DSCU	DUCTLESS SPLIT CONDENSING UNIT
DSFC	DUCTLESS SPLIT FAN COIL UNIT
DSHP	DUCTLESS SPLIT HEAT PUMP
DWG	DRAWING
DX	DIRECT EXPANSION
EA	EXHAUST AIR/EXTRACTION AIR
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
	EXHAUST FAN
	EFFICIENCY
	ELECTRIC UNIT HEATER
	ELECTRICAL
	ENERGY MONITORING AND CONTROL SYSTEM
	ENERGY RECOVERY UNIT
	EXTERNAL STATIC PRESSURE
	EXTERIOR
	EXHAUST
EXIST.	EXISTING
FCU	FAN COIL UNIT
FD_	FIRE DAMPER
FFF	FINISHED FLOOR ELEVATION

PD	PRESSURE DROP
PH	PHASE
PPM	PARTS PER MILLION
PRV	PRESSURE RELIEF VALVE
QTY	QUANTITY
RA	RETURN AIR
RG	RETURN GRILLE
RH	RELATIVE HUMIDITY
RL	REFRIGERANT LIQUID
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
RS	REFRIGERANT SUCTION
SA	SUPPLY AIR
SD	SMOKE DAMPER, SMOKE DETECTOR
	•
SEER	SEASONAL ENERGY EFFICIENCY RATIO
SF	SUPPLY FAN
	SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION
SP	STATIC PRESSURE
SS	STAINLESS STEEL
T'STAT	THERMOSTAT
TEMP	TEMPERATURE
THR	TOTAL HEAT REJECTION
TYP	TYPICAL
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORY
V	VOLTAGE
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE
VSD	VARIABLE SPEED DRIVE
W	WATT
W/	WATT
W/O	WITHOUT
WB, Twb	WET BULB (TEMPERATURE)
WD	WIDE, WIDTH
WG	WATER GAUGE
WL	WALL LOUVER
WMS	WIRE MESH SCREEN
MVD	MANUAL VOLUME DAMPER
TG	TRANSFER GRILLE
THA	TOTAL HEAT ABSORPTION
H	HEIGHT
C.A.	COMBUSTION AIR INTAKE
F.V.	FLUE VENT
RHG	REFRIGERANT HOT GAS
(°F)	DEGREES FAHRENHEIT
DSS	DUCTLESS SPLIT SYSTEM
SRDL	STRATEGIC RESERVE DRUM LOUVER
TADL	TREATED AIR DRUM LOUVER
SREG	STRATEGIC RESERVE EXHAUST GRILLE
EG	EXHAUST GRILLE
	OUTSIDE AIR DRUM LOUVER
OADL	
OASG	OUTSIDE AIR SUPPLY GRILLE
BOD	BOTTOM OF DUCT
NC	NORMALLY CLOSED

SHEET ID M-001

FINISHED FLOOR ELEVATION

FULL LOAD AMPS

FOOT OR FEET

FT. WG FEET WATER GAUGE

HEAT PUMP

HEATING

HEATER

INCHE(S)

KILOWATTS LENGTH

MAXIMUM

1,000 x BTUs

MECHANICAL

MOUNTED

NORMALLY OPEN

OUTSIDE DIAMETER

NOT TO SCALE **OUTSIDE AIR**

NET PART LOAD VALUE

FSD

GPM

HGR

HP

HTG

HTR

HVAC

KW

LBS

MBH

MCA

MOD

MERV

MECH

NO NPLV

FOB, FOT FLAT ON BOTTOM, FLAT ON TOP

FIRE SMOKE DAMPER

GENERAL CONTRACTOR

INCHES WATER COLUMN INCHES WATER GAUGE

HEATING SEASONAL PERFORMANCE FACTOR

HEATING, VENTILATING AND AIR CONDITIONING

INTERNATIONAL MECHANICAL CODE

INTEGRATED PART LOAD VALUE

LEAVING WATER TEMPERATURE

MINIMUM EFFICIENCY REPORTING VALUE

MAXIMUM OVER CURRENT PROTECTION

MANUFACTURER'S STANDARDIZATION SOCIETY

LEAVING AIR TEMPERATURE

MINIMUM CIRCUIT AMPACITY

MFR. MFG MANUFACTURER, MANUFACTURING

MAKE UP WATER (DOMESTIC)

LBF/IN2 POUND FORCE PER SQUARE INCH

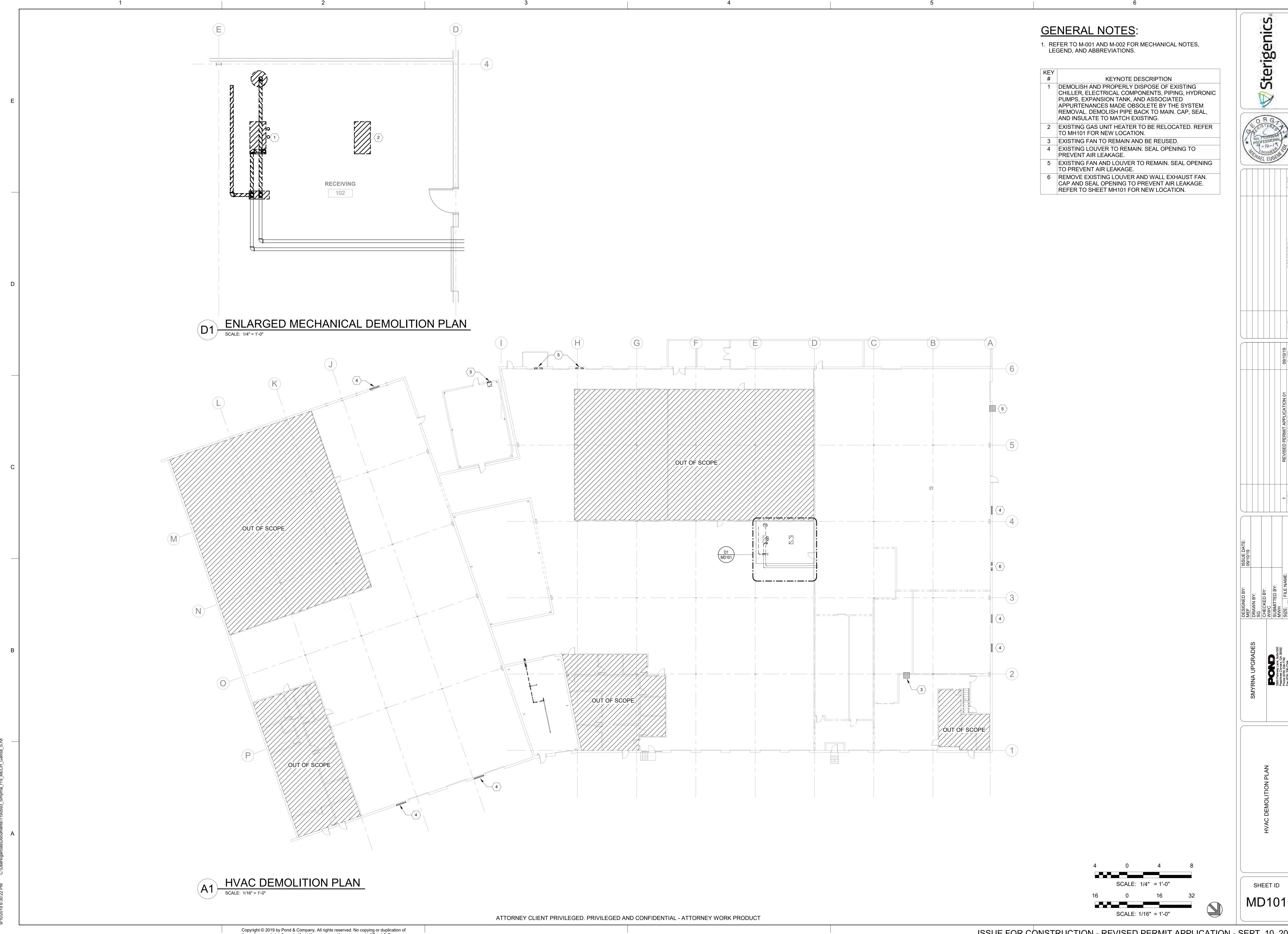
MOTORIZED DAMPER

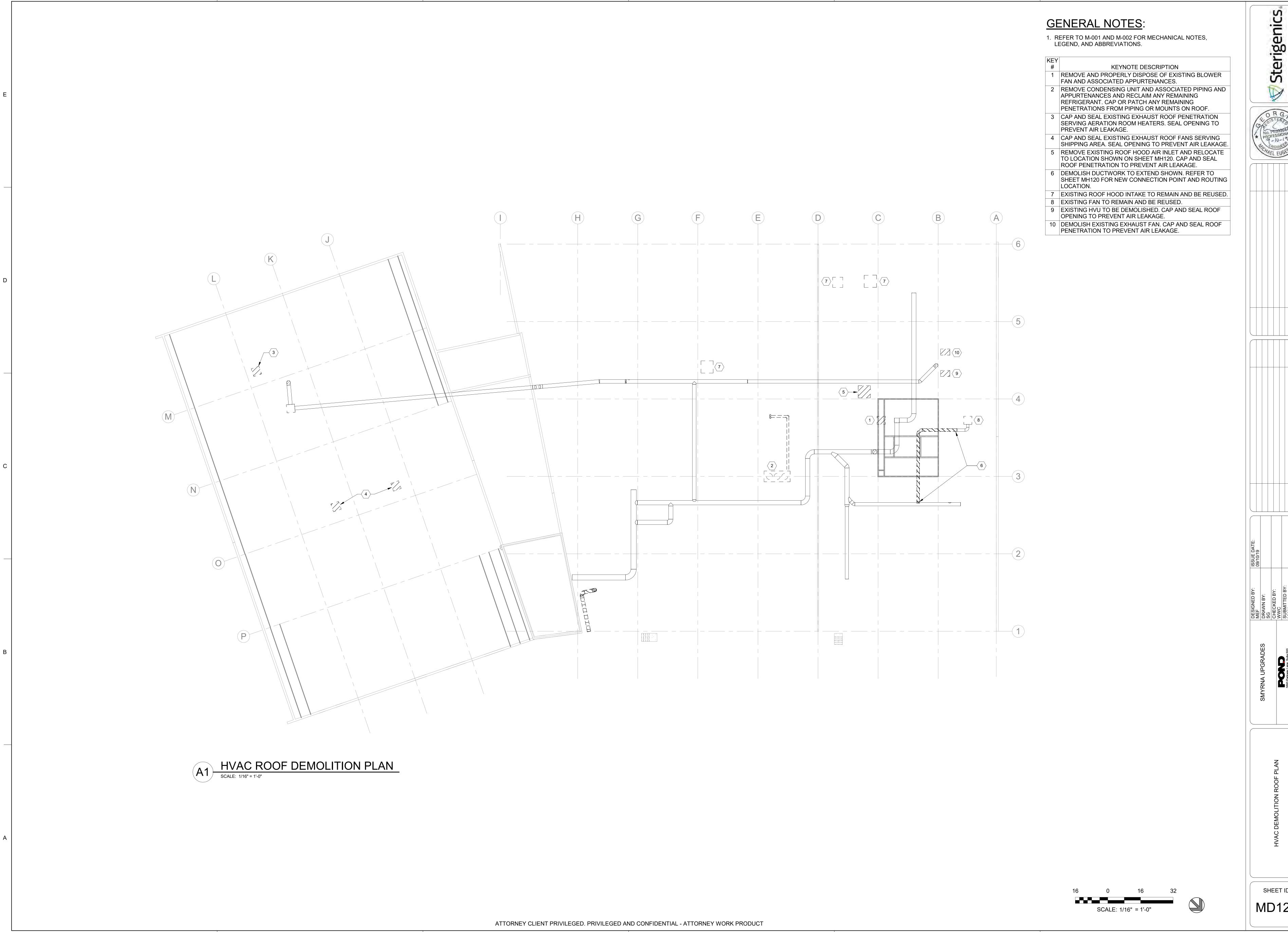
GALLONS PER MINUTE

HOT GAS REHEAT

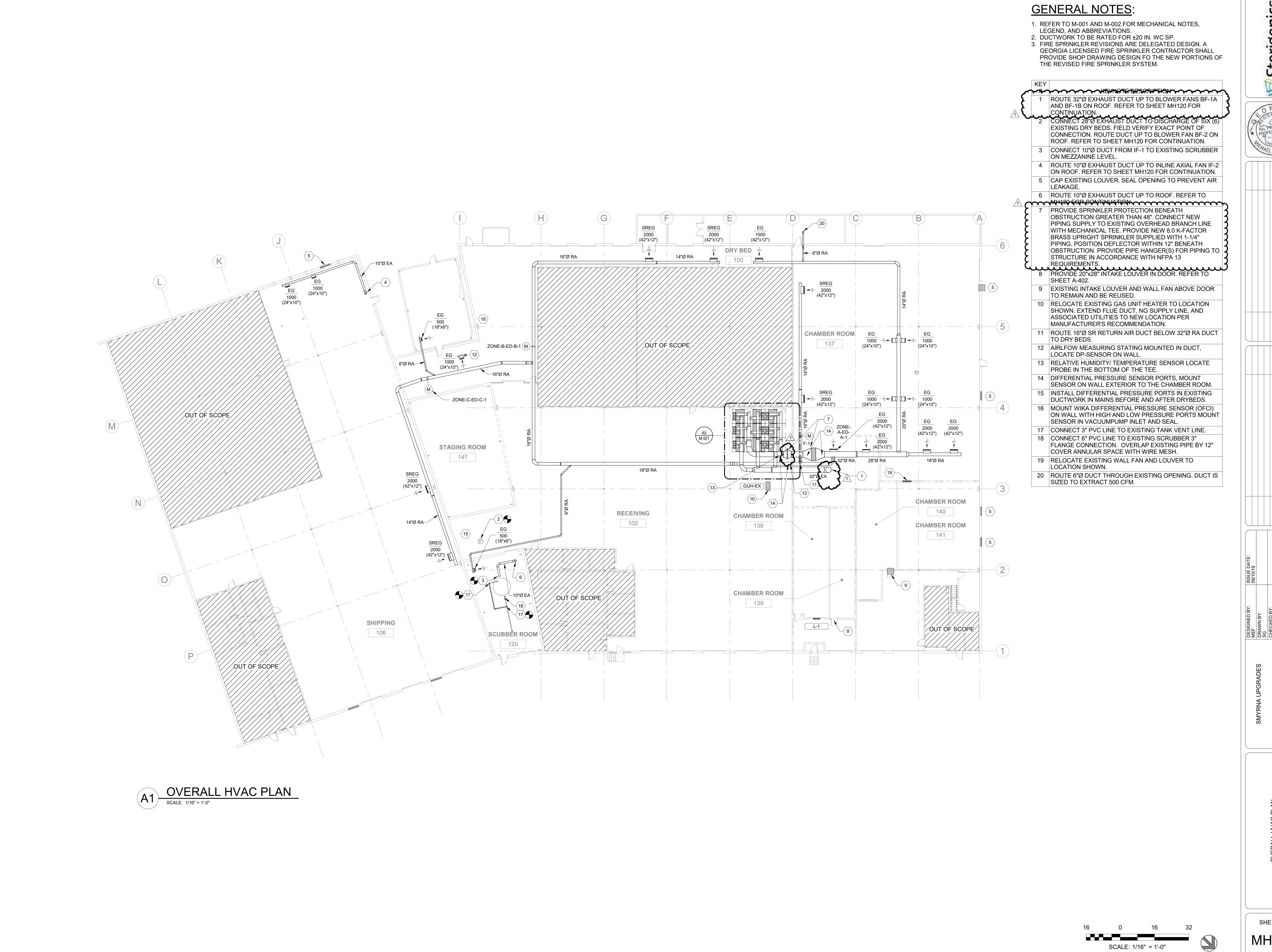
ATTORNEY CLIENT PRIVILEGED. PRIVILEGED AND CONFIDENTIAL - ATTORNEY WORK PRODUCT

INSTALLED BY THEM.

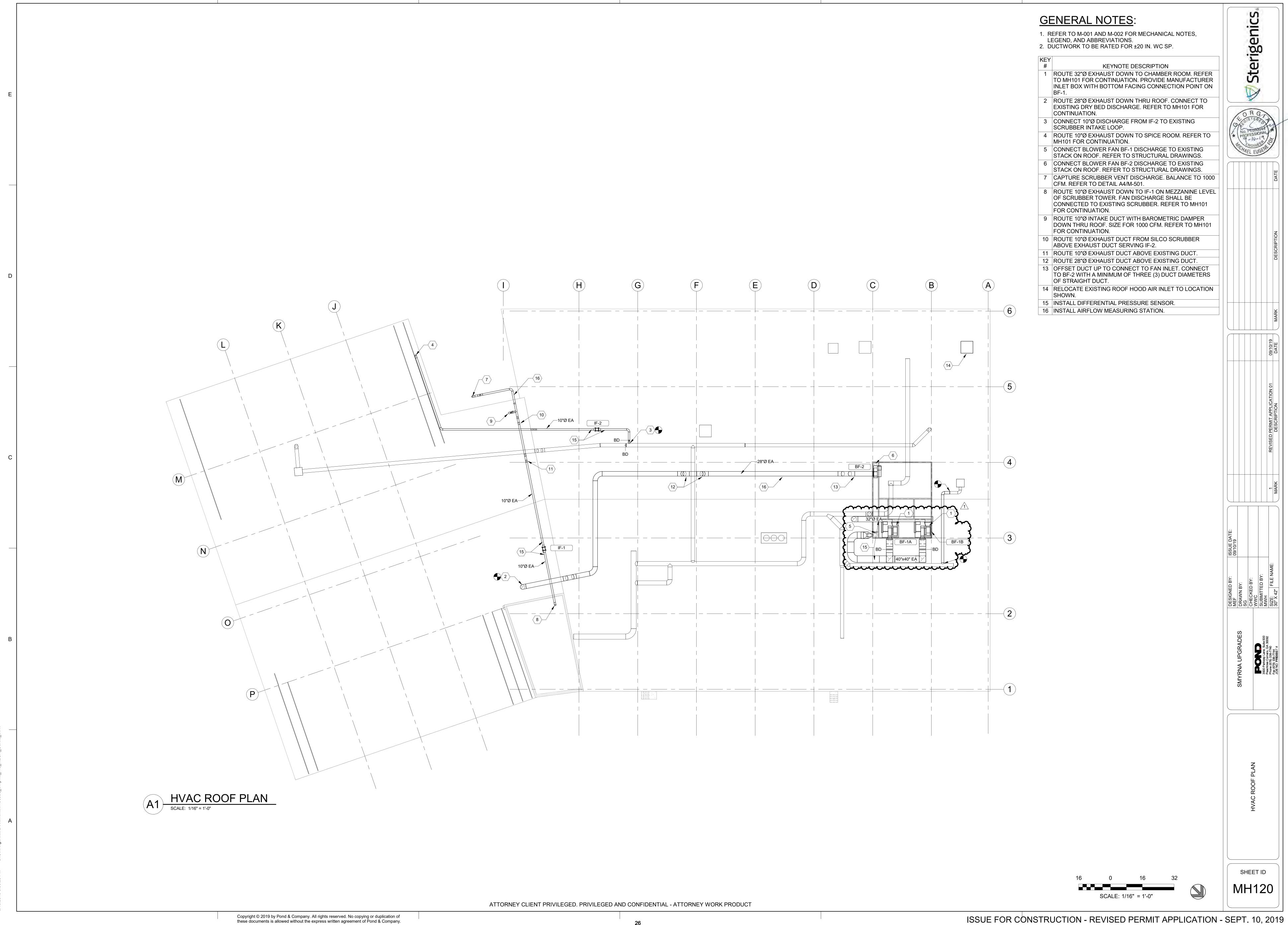


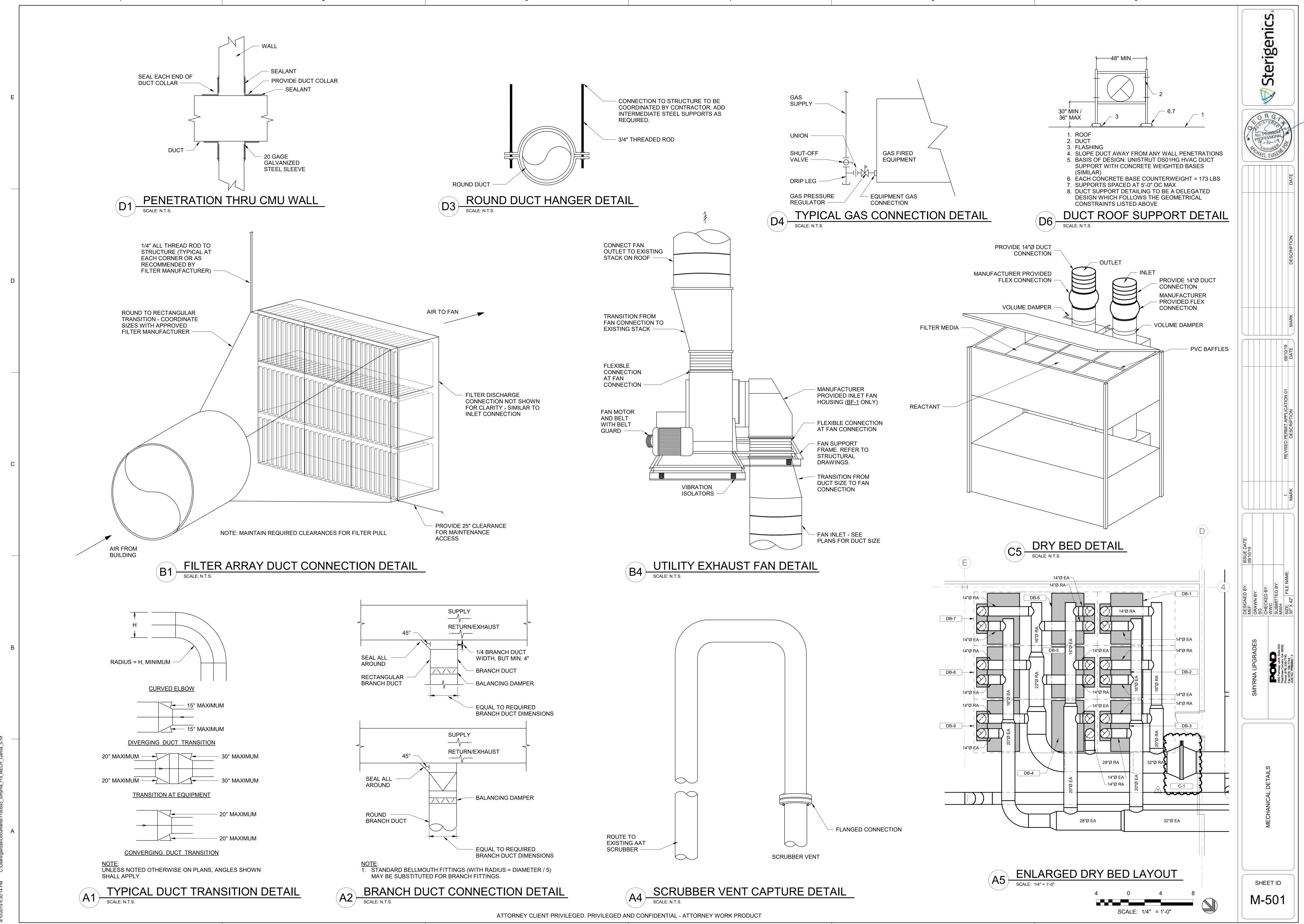


SHEET ID MD120



SHEET ID MH101





			FILTI	ER SCHED	ULE						
	LOCATION	BASIS	OF DESIGN				FILTER	₹			
								PD	MAX		
								(IN.	VELOCITY		
TAG	NAME	MANUFACTURER	MODEL NO.	TOTAL CFM	QTY	SIZE	EFF	W.G.)	(FPM)	TYPE	REMARKS
F-1	CHAMBER ROOM	CAMFIL	HI FLO ES BAG FILTERS	18,000	9	24"x24"x22"	MERV 11	0.23	625	BAG	1 - 4
REM	REMARKS										

- PROVIDE WITH CAMFIL GLIDEPACK GP MT35 3HX3W FILTER HOUSING OR EQUAL.
 FILTER HOUSING SHALL BE RATED FOR +/- 20 IN. W.G.

- 3. OWNER FURNISHED, CONTRACTOR INSTALLED.

 4. MAXIMUM ALLOWABLE VELOCITY LISTED. MANUFACTURER RECOMMENDATION IS 300-400 FPM.

	AIR TERMINAL SCHEDULE													
BASIS OF DESIGN														
TAG	MANUFACTURER	MODEL	SYSTEM	DESCRIPTION	MOUNTING	NECK SIZE	MATERIAL	COLOR	REMARKS					
EG	TITUS	350FL	RETURN/EXHAUST	FIXED BLADE LOUVERED GRILLE	DUCT	SEE PLAN	ALUMINUM	WHITE	1					
SREG	TITUS	350FL	RETURN/EXHAUST	FIXED BLADE LOUVERED GRILLE	DUCT	SEE PLAN	ALUMINUM	WHITE	1					
1. PRO	REMARKS 1. PROVIDE OPPOSED BLADE DAMPER ONLY FOR DIFFUSERS AND GRILLES WHERE THEY ARE BOTH MOUNTED IN BRANCH TAKE-OFFS AND ARE LOCATED ABOVE INACCESSIBLE CEILINGS.													

	LOUVER SCHEDULE													
	LOCATION			BASIS OF D	ESIGN				FREE AREA		DIMEN	ISIONS	UNIT	
							AIRFLOW	AREA	VELOCITY	PRESSURE			WEIGHT	
ID	NAME	NO.	SERVES	MANUFACTURER	MODEL NO.	MATERIAL	(CFM)	(SF)	(FPM)	DROP (IN. WG.)	WIDTH	HEIGHT	(LBS)	REMARKS
L-1	CHAMBER ROOM	138	CHAMBER ROOM 138 INTAKE	GREENHECK	ESD-635	ALUMINUM	2000	3.8	533	0.04	36"	36"	28 lb	1
REMAR	REMARKS													
1. UNIT	1. UNIT SHALL BE EXTRUDED ALUMINUM STATIONARY TYPE.													

				FAN SO	CHEDULE									
	LOCATION		BASIS	S OF DESIGN			FAN	I DATA			ELECTRICAL DATA			
						AIRFLOW	ESP (IN.	DRIVE	MOTO POWER	1717	X UNIT	Т		
~*************************************	~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~MANUFACTORER~	~~~MOBEL/NO.~~~	MANAGE MA	~~(@FM)~	WO.	TYPE		RPHIN (SHE	A) (LBG)	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		TREMARKS
BF-1A	ROOF	CHAMBER ROOM	NEW YORK BLOWER	BACKWARD INCLINED SWSI	CENTRIFUGAL BLOWER	18,000	17.00	BELT	75 ·	1675 74	4462	480	3	1 - 2
BF-1B	ROOF	CHAMBER ROOM	NEW YORK BLOWER	BACKWARD INCLINED SWSI	CENTRIFUGAL BLOWER	18,000	17.00	BELT	75 ·	1675 7	4462	480	3	1 - 2
BERN	WROOF	MOHAMBER ROOM	MANEWAYORKA BLOWER	-BACKWARDUHCHNEDOWSU	COENTRIEUGAL BLOWERA	12,000	~7 <u>2</u> 5~	PENT	سويس	1784VZ	Z-1270	Menon	Mar	سيمسي
IF-1	ROOF	SCRUBBER VENT	GREENHECK	TCB-1-10-10	INLINE CENTRIFUGAL	1,000	1.50	BELT	1 '	1725 6	7 167	240	3	1 - 2
IF-2	ROOF		GREENHECK	TCB-1-10-10	INLINE CENTRIFUGAL	1,000	1.50	BELT	1 '	1725 6	7 167	240	3	1 - 2

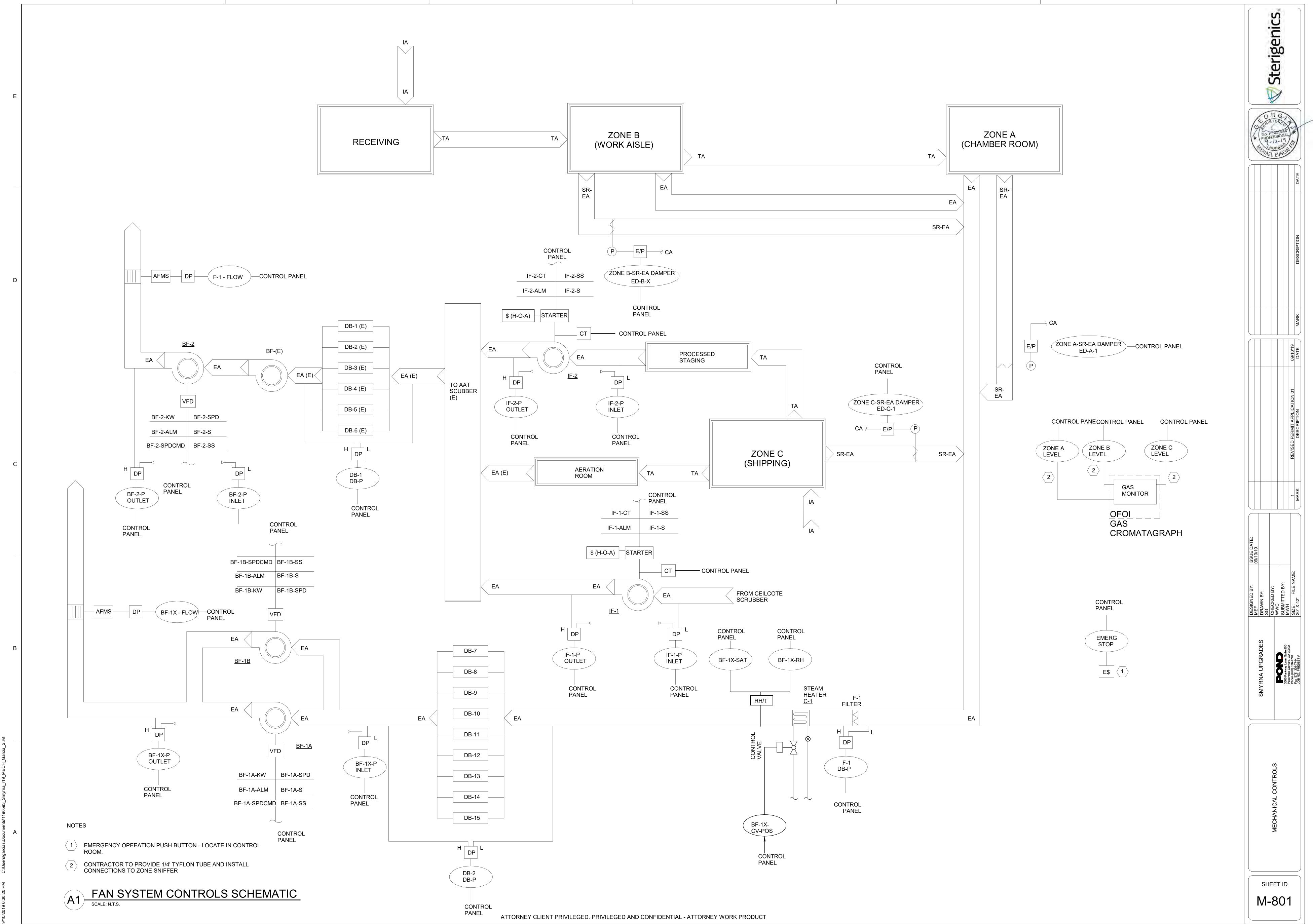
	DRY BED SCHEDULE																
MARK	LOCATION	BASIS OF DE		MATERIAL OF CONSTRUCTION	INLET (IN)	OUTLET (IN)	NO. OF REACTANT BEDS	REACTANT VOLUME PER BED (CU. FT.)	REACTANT DEPTH PER BED (IN)	APPROX. REACTANT WEIGHT PER BED (LB.)	UNIT OPERATING WEIGHT (LB)	TOTAL EtO TREATMENT CAP. AT 99% REMOVAL EFF. (LB)	AIRFLOW (CFM)	PRESSURE DROP (IN WG)	VACUUM DESIGN (IN WG)	ASSOCIATED FAN	REMARK
DB-1	RECEIVING	AAT	DR-490	12 GA. 304 SS	14"Ø	14"Ø	2	12	6	450	2500	300	2000	6	-20	BF-1	1
DB-2	RECEIVING	AAT	DR-490	12 GA. 304 SS	14"Ø	14"Ø	2	12	6	450	2500	300	2000	6	-20	BF-1	1
DB-3	RECEIVING	AAT	DR-490	12 GA. 304 SS	14"Ø	14"Ø	2	12	6	450	2500	300	2000	6	-20	BF-1	1
DB-4	RECEIVING	AAT	DR-490	12 GA. 304 SS	14"Ø	14"Ø	2	12	6	450	2500	300	2000	6	-20	BF-1	1
DB-5	RECEIVING	AAT	DR-490	12 GA. 304 SS	14"Ø	14"Ø	2	12	6	450	2500	300	2000	6	-20	BF-1	1
DB-6	RECEIVING	AAT	DR-490	12 GA. 304 SS	14"Ø	14"Ø	2	12	6	450	2500	300	2000	6	-20	BF-1	1
DB-7	RECEIVING	AAT	DR-490	12 GA. 304 SS	14"Ø	14"Ø	2	12	6	450	2500	300	2000	6	-20	BF-1	1
DB-8	RECEIVING	AAT	DR-490	12 GA. 304 SS	14"Ø	14"Ø	2	12	6	450	2500	300	2000	6	-20	BF-1	1
DB-9	RECEIVING	AAT	DR-490	12 GA. 304 SS	14"Ø	14"Ø	2	12	6	450	2500	300	2000	6	-20	BF-1	1

<u>REMARKS</u>

1. OWNER FURNISHED, CONTRACTOR INSTALLED.

SHEET ID M-601

ATTORNEY CLIENT PRIVILEGED. PRIVILEGED AND CONFIDENTIAL - ATTORNEY WORK PRODUCT



	DI	DC INPUT OUTPUT SUMMARY			VDC PUTS						4-20 VDC INPL	UTS		SOFTWARE	
,		FAN SYSTEM	D	IGITAL	ANAL	OG		DIGIT	TAL			ANALOG		JOITVANE	
QUIPMENT	POINT NAME	POINT DESCRIPTION	SYSTEM GRAPHIC DISPLAY START/STOP	OPEN/CLOSE ENABLE/DISABLE	SETPOINT ADJUST VALVE COMMAND	ONTRO	DIFFERENTIAL PRESSURE SWITCH	START/STOP FLOW SWITCH	OPEN/CLOSE	ALARM LEVEL SWITCH	PULSE CONTACT SPEED (Hz) TEMPERATURE (DEG F) ELECTRICAL DEMAND (KW)	CURRENT VFD FREQUENCY (%) PRESSURE (IN. WG.) POSITION	FLOW (CFM) EtO LEVEL (PPM) HUMIDITY (%) ALARMABLE	IALOG VA IARY VAF INTIME TO TALIZATIONSET OF THE SET AVAI	ATEL
-1X (2 FANS)															
	BF-1X-KW	FAN BF-1X POWER DEMAND (kW)	X								X			X	
	BF-1X-ALM	FAN BF-1X ALARM	X							X					
	BF-1X-SPDCMD	FAN BF-1X VFD SPEED (Hz) COMMAND	X			X								X	
	BF-1X-SPD	FAN BF-1X SPEED (Hz)	X								X				
	BF-1X-S	FAN BF-1X STATUS	X			X								X X	ALARM IF STATUS ≠ COMMAND; RESET AVAILABLE FOR RUNTIME HRS
	BF-1X-SS	FAN BF-1X START/STOP	XX												
	BF-1X-FLOW	FAN BF-1X FLOW											X		
	BF-1X-P	FAN BF-1X DIFFERENTIAL PRESSURE								X					
2										_					
	BF-2-KW	FAN BF-2 POWER DEMAND (kW)	X				+			+	Y			Y	
	BF-2-ALM	FAN BF-2 ALARM	X					_		X					
	BF-2-SPDCMD	FAN BF-2 VFD SPEED (Hz) COMMAND	X			X	+++	_						X	
	BF-2-SPD	FAN BF-2 SPEED (Hz)	X					+			X				
	BF-2-S	FAN BF-2 STATUS	X			X								x x	ALARM IF STATUS ≠ COMMAND; RESET AVAILABLE FOR RUNTIME HR
	BF-2-SS	FAN BF-2 START/STOP	XX	(+							
	BF-2-FLOW	FAN BF-2 FLOW											X		
	BF-2-P	FAN BF-2 DIFFERENTIAL PRESSURE										X			
SYSTEM															
	EMERG STOP	EMERGENCY EXHAUST SYSTEM STOP	XX							_					BF-1 & 2 STOP
Γ Λ	CHIDDING									_					
	SHIPPING ZONE A - SAMPLING PORT	ZONE A - SAMPLING PORT LEVEL (PPM)	X										X		
	ZONE A - RA DMPR	ZONE A - RETURN AIR DAMPER	X	X			+++	_							PNEUMATIC OPERATOR WITH E/P SWITCH
	ZONE / TO COM IN	ZONE / NETONA / MIN D/ MIN EN						_		_					THEOMINATION OF ENVIRONMENT ENTREMENT OF THE OWN TO THE
ΞB	EAST WORK ISLE														
		ZONE B - SAMPLING PORT LEVEL (PPM)	X										X		
		ZONE B - RETURN AIR DAMPER	X	X											PNEUMATIC OPERATOR WITH E/P SWITCH
E C	WEST WORK ISLE														
		ZONE C - EtO CONCENTRATION LEVEL (PPM)	X										X		
	ZONE C - SR-RA DMPR	ZONE C - RETURN AIR DAMPER	X	X											PNEUMATIC OPERATOR WITH E/P SWITCH
	IF-1-CT	FAN IF-1 CURRENT TRANSDUCER	X							+		X		X	
	IF-1-ALM	FAN IF 1 STATUS	X				_			<u>X</u>					ALADM IE STATUS + COMMANIO, DESET AVAILADLE FOR DUNTME UR
	IF-1-S	FAN IF-1 STATUS	X	,		X	•							XX	ALARM IF STATUS ≠ COMMAND; RESET AVAILABLE FOR RUNTIME HR
	IF-1-SS	FAN IF-1 START/STOP	XX				++								
	IF-1-P	FAN IF-1 DIFFERENTIAL PRESSURE								-		X			
							+	$\overline{}$		+					
	IF-2-CT	FAN IF-2 CURRENT TRANSDUCER	X				++	+		+		X		+x + + + + +	
	IF-2-ALM	FAN IF-2 ALARM	X					+		X					
	IF-2-S	FAN IF-2 STATUS	Y			X	+	+		/ \				X X	ALARM IF STATUS ≠ COMMAND; RESET AVAILABLE FOR RUNTIME HR
	IF-2-SS	FAN IF-2 START/STOP	XX			^	-	+		+					
1				`			4	+		_		X		+ + + + + +	
	IF-2-P	FAN IF-2 DIFFERENTIAL PRESSURE							1	l l					

FUGITIVE EMISSIONS SYSTEM (BF-1X)

IN THIS MODE, ZONES A AND B WILL HAVE LOW LEVELS OF ETO BELOW OR EQUAL TO 1 PPM. THE GAS MONITORING SYSTEM SHALL CONTINUOUSLY MONITOR EACH OF THE SPACES AND TREND DATA. THE DDC SYSTEM WILL RECEIVE INFORMATION FROM THE GAS MONITORING SYSTEM INCLUDING THE TREND DATA. IN THIS MODE, THE EXHAUST FAN SHALL BE AT MINIMUM FLOW AND AIR SHALL BE TRANSFERRED FROM LOWER TO HIGHER LEVELS ETO CONCENTRATION ROOMS ON AS INDICATED IN THE SYSTEMS DIAGRAM 1/M-801 MINIMUM AIRFLOW DIAGRAM. ADDITIONALLY, THE DDC SYSTEM SHALL MONITOR THE FOLLOWING POINTS:

- 1. FAN AIRFLOW 2. FAN ENTERING AIR STATIC PRESSURE
- 3. FAN LEAVING AIR STATIC PRESSURE
- 4. DRY BED ENTERING AIR STATIC PRESSURE 5. DRY BED LEAVING AIR STATIC PRESSURE
- 6. EACH DRY BED DIFFERENTIAL STATIC PRESSURE
- IN THE NORMAL MODE OF OPERATION, THE RETURN DAMPERS POSITIONS SHALL BE AS INDICATED BELOW: 1. ZONE A RA DAMPER - CLOSED
 - 2. ZONE B RA DAMPER CLOSED
- 3. ZONE C RA DAMPER CLOSED IN THE NORMAL MODE OF OPERATION, THE FANS SHALL BE IN THE FOLLOWING STATES:

1. BF-1X - MINIMUM FLOW (15,000 CFM)

HIGH LEVEL MODE IN THIS MODE, ANY ONE OR MORE ZONES A, B, AND C WILL HAVE LEVELS OF ETO ABOVE 1 PPM TO LESS THAN 3 PPM. THE GAS MONITORING SYSTEM SHALL CONTINUOUSLY MONITOR EACH OF THE SPACES AND TREND DATA. THE DDC SYSTEM WILL RECEIVE INFORMATION FROM THE GAS MONITORING SYSTEM INCLUDING THE TREND DATA. IN THIS MODE, THE AIR SHALL CONTINUE TO BE TRANSFERRED FROM LOWER TO HIGH LEVELS ETO CONCENTRATION ROOMS ON AS INDICATED IN THE SYSTEMS DIAGRAM 1/M-801 MINIMUM AIRFLOW DIAGRAM. ON A RISE IN ETO LEVELS IN ANY ONE OF THE SPACES (ZONES A, B, OR C) ABOVE THE SETPOINT OF 1 PPM BF-1X FAN SPEED SHALL BE INCREASED TO CONTROL AIRFLOW AS INDICATED BELOW. ADDITIONALLY, THE STRATEGIC RESERVES RETURN AIR DAMPER FOR THAT ZONE SHALL OPEN. THIS SHALL BE TYPICAL FOR EACH ZONE THAT MAY GO INTO ALARM AT ANY ONE

NORMAL MODE

1. BF-1X (PRIMARY) AIRFLOW AT MINIMUM FLOW AND

TIME. STRATEGIC RESERVES RETURN DAMPER SHALL REMAIN OPEN UNTIL NEW HIGH LEVEL DETECTION.

IF ANY ONE OR MULTIPLE ZONES IN ALARM -

- 1. THE ASSOCIATED ZONE'S STRATEGIC RESERVES RETURN AIR DAMPER(S) OPEN
- 2. BF-1X AIRFLOW SHALL INCREASE TO 18000 CFM (14000 CFM + 4000 CFM) THIS SHALL BE TYPICAL FOR EACH ZONE THAT MAY GO INTO ALARM AT ANY ONE TIME.
- THE REVERSE SEQUENCE SHALL OCCUR AS THE ZONES GO OUT OF ALARM CONDITION.
 IN EMERGENCY MODE, BF-1X (PRIMARY) SHALL BE DE-ENERGIZED AND ALL STRATEGIC RESERVE SUPPLY AND RETURN DAMPERS SHALL CLOSE.

HIGH SUPPLY AIR STATIC PRESSURE: IF THE SUPPLY AIR STATIC PRESSURE IS 25% (ADJ.) GREATER THAN SETPOINT. LOW SUPPLY AIR STATIC PRESSURE: IF THE SUPPLY AIR STATIC PRESSURE IS 25% (ADJ.) LESS THAN SETPOINT.

HIGH STATIC SHUTDOWN: THE UNIT SHALL SHUT DOWN AND GENERATE AN ALARM ÙPOŃ RECEIVING A HIGH STATIC PRESSURE SHUTDOWN SIGNAL. MANUAL RESTART SHALL BE REQUIRED. FAN FAILURE: IF THE EXHAUST FAN STATUS DOES NOT EQUAL THE COMMAND.

THE DDC SHALL MONITOR THE FAN AND ALARM IN THE EVENT OF THE FAN FAILURE. WARNING: LOW AIR FLOW SYSTEM TO WARN WHEN AIR FLOW IS BELOW SETPOINT.

CEILCOTE TIE-IN FAN (IF-2)
THE FAN SHALL OPERATE CONTINUOUSLY AT A CONSTANT VOLUME. THE DDC CONTROL SYSTEM SHALL BE CAPABLE OF STARTING AND STOPPING THE FAN. ADDITIONALLY, THE DDC SYSTEM SHALL BE CAPABLE OF MONITORING.

1. FAN ENTERING AIR STATIC PRESSURE

2. FAN LEAVING AIR STATIC PRESSURE

<u>HIGH SUPPLY AIR STATIC PRESSURE:</u> IF THE SUPPLY AIR STATIC PRESSURE IS 25% (ADJ.) GREATER THAN SETPOINT. <u>LOW SUPPLY AIR STATIC PRESSURE:</u> IF THE SUPPLY AIR STATIC PRESSURE IS 25% (ADJ.) LESS THAN SETPOINT.

HIGH STATIC SHUTDOWN: THE UNIT SHALL SHUT DOWN AND GENERATE AN ALARM ÙPOŃ RECEIVING A HIGH STATIC PRESSURE SHUTDOWN SIGNAL. MANUAL RESTART SHALL BE REQUIRED.

FAN FAILURE: IF THE EXHAUST FAN STATUS DOES NOT EQUAL THE COMMAND.
THE DDC SHALL MONITOR THE FAN AND ALARM IN THE EVENT OF THE FAN FAILURE.

SHEET ID M-802

NOTES:

. ALL EXISTING EQUIPMENT IS SHOWN IN HALFTONE LINEWORK ALL DEMOLISHED EQUIPMENT IS SHOWN IN BOLD LINEWORK, DASHED AND HATCHED. ALL NEW OR RELOCATED EQUIPMENT IS SHOWN IN BOLD LINEWORK. BELOW IS AN EXAMPLE OF EACH:

EXISTING EQUIPMENT

NEW OR RELOCATED EQUIPMENT

HATCH INDICATES EQUIPMENT TO BE DEMOLISHED

WIRE SIZE FOR ALL 120V, 20A CIRCUITS, UIO:

FOR ALL ONE-WAY CIRCUITS OF LENGTH OF LESS THAN 75 FT, PROVIDE 2#12 & 1#12G, 3/4"C.

FOR ALL ONE-WAY CIRCUITS OF LENGTH OF LESS THAN 125 FT AND GREATER THAN OR EQUAL TO 75 FT, PROVIDE 2#10 & 1#10G, 3/4"C.

FOR ALL ONE-WAY CIRCUITS OF LENGTH OF LESS THAN 190 FT AND GREATER THAN OR EQUAL TO 125 FT, PROVIDE 2#8 & 1#8G,

FOR ALL ONE-WAY CIRCUITS OF LENGTH OF LESS THAN 300 FT AND GREATER THAN OR EQUAL TO 190 FT, PROVIDE 2#6 & 1#6G,

WIRE SIZE FOR ALL 277V, 20A

CIRCUITS, UIO: FOR ALL ONE-WAY CIRCUITS OF LENGTH OF LESS THAN 170 FT, PROVIDE 2#12 & 1#12G, 3/4"C.

FOR ALL ONE-WAY CIRCUITS OF LENGTH OF LESS THAN 280 FT AND GREATER THAN OR EQUAL TO 170 FT, PROVIDE 2#10 & 1#10G,

FOR ALL ONE-WAY CIRCUITS OF LENGTH OF LESS THAN 440 FT AND GREATER THAN OR EQUAL TO 280 FT, PROVIDE 2#8 & 1#8G,

FOR ALL ONE-WAY CIRCUITS OF LENGTH OF LESS THAN 700 FT AND GREATER THAN OR EQUAL TO 440 FT, PROVIDE 2#6 & 1#6G, 3/4"C.

GENERAL NOTES:

THE WORK SHALL CONFORM WITH ALL REQUIREMENTS OF:

A. NFPA 70-2017 (NATIONAL ELECTRICAL CODE) B. ANSI C2-2017 (NATIONAL ELECTRICAL SAFETY CODE)

C. APPLICABLE LOCAL CODES AND FEDERAL AND STATE LAWS.

MINIMUM RACEWAY SIZE SHALL BE 3/4". INCREASE RACEWAY SIZE AS REQUIRED TO LIMIT RACEWAY FILL RATIO TO LESS THAN 40%

CONTRACTOR SHALL CAREFULLY COORDINATE WORK WITH OTHER TRADES THROUGH THE GENERAL CONTRACTOR AND SHALL BE RESPONSIBLE FOR SECURING SPACE REQUIREMENTS FOR ELECTRICAL EQUIPMENT CLEARANCE FOR RECESSED LIGHTING FIXTURES AND CORRECT ROUGH-IN LOCATIONS OF ELECTRICAL CONNECTIONS.

CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING CATALOG NUMBERS ON THESE DRAWINGS TO MATCH WITH MATERIAL DESCRIPTIONS INDICATED.

VERIFY EXACT HEIGHT OF EACH COUNTERTOP AND BACKSPLASH ON ARCHITECTURAL DETAILS AND/OR CASE WORK SHOP DRAWINGS AND ADJUST SPECIFIED MOUNTING HEIGHT OF WALL OUTLETS TO LOCATE BOTTOM OF OUTLET BOX 4" ABOVE TOP OF BACKSPLASH. IF NO BACKSPLASH IS USED, LOCATE BOTTOM OF OUTLET BOX 6" ABOVE COUNTERTOP.

VERIFY DOOR SWINGS WITH ARCHITECTURAL DRAWINGS BEFORE ROUGHING IN WALL SWITCHES. SWITCHES IN THE SAME LOCATION SHALL BE GANGED TOGETHER IN ONE COMMON BACKBOX AND SHALL HAVE ONE COMMON FACE PLATE.

ALL FEEDERS AND BRANCH CIRCUITS SHALL INCLUDE A GREEN INSULATED GROUND CONDUCTOR, SIZE PER NATIONAL ELECTRICAL CODE, OR AS SHOWN, CONNECTED TO EACH DEVICE AND OUTLET BOX ON THE CIRCUIT AND TO THE PANELBOARD GROUND BUS. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH BRANCH CIRCUIT. MULTIPLE BRANCH CIRCUITS IN ONE RACEWAY REQUIRE ONLY ONE GROUND CONDUCTOR.

VERIFY LUMINAIRE, CEILING MOUNTED OCCUPANCY SENSOR LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS AND DIMENSIONS PRIOR TO INSTALLATION. VERIFY EXACT LOCATIONS OF MOTORS AND EQUIPMENT BEFORE ROUGHING-IN.

EXISTING ELECTRICAL WORK (NOT SHOWN) SHALL REMAIN, UNLESS INDICATED OTHERWISE. SHOULD ANY EXISTING ELECTRICAL POWER, LIGHTING OR AUXILIARY CIRCUIT, FEEDER OR EQUIPMENT BE SEVERED, DISCONNECTED OR DELETED IN THE PROCESS OF (CONSTRUCTION OR REMODELING WHICH IS DONE AS A RESULT OF CONTRACT PLANS AND SPECIFICATIONS, AND UNLESS SPECIFICALLY DESIGNATED BY THE DRAWINGS TO BE DELETED, THEN SAID CIRCUIT OR FEEDER SHALL BE RESTORED TO WORKING CONDITION. THE RESTORATION SHALL INCLUDE RE-ROUTING, RELOCATION, RECONNECTION OR REPLACEMENT AS MAY BE REQUIRED BY THE NEW WORK. ANY SUCH WORK REQUIRED SHALL BE INCLUDED IN THE CONTRACT AND NO EXTRA COMPENSATION WILL BE GRANTED.

10. NEW WORK SHALL BE MADE TO TIE INTO THE EXISTING IN A UNIFORM MANNER, SIMILAR ITEMS OF NEW WORK SHALL BE CHECKED AGAINST EXISTING WORK FOR TYPE MOUNTING, MOUNTING HEIGHTS, ETC. ITEMS SHOWN IN NEW WORK AT VARIANCE FROM THE EXISTING SHALL BE REFERRED TO THE ARCHITECT FOR DECISION BEFORE ROUGH-IN.

1. REFER TO ONE-LINE DIAGRAMS, SCHEDULES AND RISER DIAGRAMS FOR CONDUCTOR AND CONDUIT SIZES NOT SHOWN ON PLANS.

2. PROVIDE IS AN INCLUSIVE TERM USED TO DESCRIBE ASPECTS OF THE WORK TO BE ACCOMPLISHED, AND IS HEREBY DEFINED TO REQUIRE TO STORE, FURNISH, INSTALL, MOUNT, CONNECT, CONTROL AND POWER EQUIPMENT INDICATED, AS WELL AS ALL APPURTENANCES REQUIRED TO MAKE ELECTRICAL SYSTEMS OPERATE AS INDICATED WITHIN THESE DRAWINGS AND SPECIFICATIONS AND TO FULFILL THE SCOPE OF WORK.

3. DEMOLISH IS AN INCLUSIVE TERM USED TO DESCRIBE ASPECTS OF THE WORK TO BE ACCOMPLISHED, AND IS HEREBY DEFINED TO REQUIRE CONTRACTOR TO DISCONNECT EQUIPMENT FROM ALL CONNECTIONS, REMOVE FROM THE OWNER'S SITE, AND DISPOSE OF IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL LAWS AND ORDINANCES. COST OF DISPOSAL IS ENTIRELY THE CONTRACTOR'S RESPONSIBILITY.

14. ALL CONDUCTORS ARE COPPER UNLESS SPECIFICALLY NOTED AS ALUMINUM.

15. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS, DIMENSIONS AND ELEVATIONS BEFORE PROCUREMENT OF ANY MATERIALS AND DEVELOPMENT OF ANY SHOP DRAWINGS OR SUBMITTALS.

ABBREVIATIONS

HVU

HWCP

SYSTEM

HEATING WATER CIRCULATING PUMP IN A

HEATING WATER SUPPLY IN A PRIMARY-ONLY

PRIMARY-SECONDARY SYSTEM

/ IDDI (E V II	((110110		
A OR AMP	AMPERE(S)	HWRP	HOT WATER RECIRCULATION PUMP
	AIR COOLED CHILLER	HWSP	HEATING WATER SUPPLY PUMP IN A PRIMARY
ACC		ПИОР	
AC	ALTERNATING CURRENT	1 15 4 / 1 1 1	SECONDARY SYSTEM
AC	AIR COMPRESSOR / AIR CURTAIN	HWUH	HOT WATER UNIT HEATER
AF	AMP FRAME	HZ	HERTZ
AFF	ABOVE FINISHED FLOOR	IDS	INTRUSION DETECTION SYSTEM
AFG	ABOVE FINISHED GRADE	IMC	INTERMEDIATE METAL CONDUIT
AHU	AIR HANDLING UNIT	IRH	INFRARED HEATER
AIC	AMPERE INTERRUPTING CAPACITY	J OR JB	JUNCTION BOX
AL	ALUMINUM	K	KILO
AM	AMMETER	KAIC	THOUSAND AMPERE INTERRUPTING CAPACITY
ASYM	ASYMMETRICAL	KCM OR KCMIL	THOUSAND OF CIRCULAR MILS
AT	AMP TRIP	KEF	KITCHEN EXHAUST FAN
ATS	AUTOMATIC TRANSFER SWITCH	KH	KITCHEN HOOD
AUTO	AUTOMATIC	KV	KILOVOLT
AWG	AMERICAN WIRE GAUGE	KVA	KILOVOLT-AMPERES
В	BOILER	KW	KILOWATT
BC	BRANCH CONTROLLER	KWHR	KILOWATT-HOUR
BCW	BARE COPPER WIRE	L	LENGTH
BFF	BELOW FINISHED FLOOR	LA	LIGHTNING ARRESTOR
BFG	BELOW FINISHED GRADE	LAN	LOCAL AREA NETWORK
BLDG	BUILDING	LAV	LAVATORY
C	CONDUIT	LTG	LIGHTING
CAT	CATEGORY	MAU	MAKE-UP AIR UNIT
CB	CIRCUIT BREAKER	MAX	MAXIMUM
CCT	CORRELATED COLOR TEMPERATURE	MCA	MINIMUM CIRCUIT AMPACITY
CCTV	CLOSED CIRCUIT TELEVISION	MCB or MB	MAIN CIRCUIT BREAKER
CFCI	CONTRACTOR FURNISHED CONTRACTOR	MCC	MOTOR CONTROL CENTER
	INSTALLED	MGB	MAIN GROUND BAR
CH	CHILLER	MH	MANHOLE or MOUNTING HEIGHT
CHWCP	CHILLED WATER CIRCULATING PUMP IN A	MIN	MINIMUM
3	PRIMARY-SECONDARY SYSTEM	MLO	MAIN LUGS ONLY
CHWP	CHILLED WATER PUMP	MOD	MOTOR OPERATED DAMPER
CHWSP	CHILLED WATER SUPPLY PUMP IN A PRIMARY-	MT or MTD	MOUNT or MOUNTED
	SECONDARY SYSTEM	MRS	MOTOR RATED SWITCH
CKT	CIRCUIT	N	NEUTRAL
CMH	COMMUNICATIONS MANHOLE	NEC	NATIONAL ELECTRICAL CODE
CP	CONDENSATE PUMP	NEMA	NATIONAL ELECTRICAL MANUFACTURER'S
CPT	CONTROL POWER TRANSFORMER		ASSOCIATION
CRAC	COMPUTER ROOM AC UNIT	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
CRI	COLOR RENDERING INDEX	NC	NORMALLY CLOSED
		NESC	NATIONAL ELECTRICAL SAFETY CODE
CT	CURRENT TRANSFORMER		
CT	COOLING TOWER	NO	NORMALLY OPEN
CU	COPPER OR CONDENSING UNIT	NTS	NOT TO SCALE
CWP	CONDENSER WATER PUMP	Р	POLE(S) or PUMP
D	DEPTH	PA	PUBLIC ADDRESS
DC	DIRECT CURRENT	PDU	POWER DISTRIBUTION UNIT
DF	DESTRATIFICATION FAN	PF	POWER FACTOR
DH or DUH	DUCT HEATERS	PH	PHASE
DHWCP	DOMESTIC HOT WATER CIRCULATING PUMP	PIU	VAV TERMINAL UNIT WITH PARALLEL OR
DISC	DISCONNECT SWITCH	1 10	SERIES FAN (PRIMARY INDUCTION UNIT)
		PMT	,
DOAS	DEDICATED OUTSIDE AIR SYSTEM (UNIT)		PAD MOUNTED TRANSFORMER
DPST	DOUBLE POLE SINGLE THROW	PNL	PANEL OR PANELBOARD
DPDT	DOUBLE POLE DOUBLE THROW	PTAC	PACKAGED THRU-WALL AIR CONDITIONER
DSCU	DUCTLESS SPLIT CONDENSING UNIT (POWERS	PVC	POLYVINYL CHLORIDE
	THE DSS INDOOR UNIT)	RECEPT or RECP	RECEPTACLE
DSHP	DUCTLESS SPLIT HEAT PUMP (POWERS THE	RF	RETURN FAN
	DSS INDOOR UNIT)	RH	RADIANT HEATERS (ELECTRIC)
DSS	DUCTLESS SPLIT SYSTEM (INDOOR UNIT)	RMC	RIGID METAL CONDUIT
DWBP	DOMESTIC WATER BOOSTER PUMP	RMS	ROOT MEAN SQUARE
		RTU	ROOF TOP UNIT
DX	DIRECT EXPANSION (DX) COOLING COIL		
EC	EMPTY CONDUIT	RVNR	REDUCED VOLTAGE NON-REVERSING
EF	EXHAUST FAN	SA	SURGE ARRESTOR
ELEC	ELECTRICAL	SCCR	SHORT CIRCUIT CURRENT RATING
EMH	ELECTRICAL MANHOLE	SD	SMOKE DAMPER
EMT	ELECTRICAL METALLIC TUBING	SF	SUPPLY FAN
E or EMER	EMERGENCY	S/N	SOLID NEUTRAL
EPA	EFFECTIVE PROJECTED AREA	SP	SUMP PUMP
EQUIP	EQUIPMENT	SPD	SURGE PROTECTIVE DEVICE
ERV	ENERGY RECOVERY VENTILATOR	SPDT	SINGLE POLE DOUBLE THROW
ERU	ENERGY RECOVERY UNIT	SPEC	SPECIFICATIONS
EXIST or EX	EXISTING	SPST	SINGLE POLE SINGLE THROW
EUH	ELECTRIC UNIT HEATER	SWBD	SWITCHBOARD
EXP	EXPLOSION PROOF	SWGR	SWITCHGEAR
EWC	ELECTRIC WATER COOLER	TMGB	TELECOMMUNICATIONS MAIN GROUNDING
EWH	ELECTRIC WATER HEATER		BUSBAR
F	FUSE	TOL	THERMAL OVERLOAD
FACP	FIRE ALARM CONTROL PANEL	TP	TWISTED PAIR
FCU	FAN COIL UNIT	TYP	TYPICAL
FLEX	FLEXIBLE	U	URINAL
FWE	FURNISHED WITH EQUIPMENT	ÜH	UNIT HEATER
G OR GND	GROUND	UG	UNDERGROUND
GFGI	GOVERNMENT FURNISHED GOVERNMENT	UIO	UNLESS INDICATED OTHERWISE
J1 J1		UL	
CEL	INSTALLED		UNDERWRITERS LABORATORY
GFI	GROUND FAULT INTERRUPTER	UTP	UNSHIELDED TWISTED PAIR
GRS	GALVANIZED RIGID STEEL CONDUIT	V	VOLTS
GUH	GAS UNIT HEATER	VA	VOLT AMPERES
GWH	GAS WATER HEATER	VAV	VAV TERMINAL UNIT
H or HT	HEIGHT	VEF	VEHICLE EXHAUST FAN
HAC	HEATED AIR CURTAIN	VM	VOLTMETER
HOA	HAND-OFF AUTOMATIC	VRF	VARIABLE REFRIGERANT FLOW SYSTEM
HP	HORSE POWER	W	WATTS or WIRE or WIDTH
HP	HEAT PUMP (OUTDOOR PORTION OF SPLIT	WC	WATTS OF WIRE OF WIDTH WATER CLOSET
1 11		WEF	WELDING EXHAUST FAN
	SYSTEM HEAT PUMP, USE CU FOR		
UT	STANDARD DX OUTDOOR UNIT)	WH	WATER HEATER
HT	HEAT TRACKING	WHDM	WATTHOUR DEMAND METER
HVU	HEATING/VENTILATING UNIT	WSHP	WATER SOURCE HEAT PUMP

WP

WEATHERPROOF

TRANSFORMER

IMPEDANCE

SHEET ID E-001

NOTE: LEGEND NOT ALL SYMBOLS SHOWN WILL BE USED ON THIS PROJECT. **LUMINAIRES WIRING DEVICES SCHEMATIC** PILOT LIGHT (G=GREEN, R=RED, Y=AMBER) ├── LUMINAIRE AND OUTLET BOX. LETTER INDICATES SIMPLEX RECEPTACLE NEMA 5-20R, MT 18" AFF, CIRCUIT HOMERUN TO PANELBOARD, LA-1,3,5 LUMINAIRE TYPE. SEE LIGHTING FIXTURE ADJACENT TO ARROW INDICATES HOMERUN OF LA-1,3,5 SCHEDULE. CIRCUITS, 1,3,5 TO PANEL LA. MARKS ACROSS CONTROL RELAY COIL DUPLEX RECEPTACLE NEMA 5-20R, MT 18" AFF, RACEWAY INDICATE THE NUMBER OF PHASE SHUNT TRIP COIL LUMINAIRE AND OUTLET BOX WIRED FOR CONDUCTORS AND NEUTRAL IN RACEWAY. MULTILEVEL SWITCHING, LOWER CASE LETTER GROUND CONDUCTORS ARE INDICATED BY TIME DELAY RELAY COIL INDICATES SWITCHLEG DESTINATION. DUPLEX RECEPTACLE, NEMA 5-20R, MT 48" AFF LONGER HASHMARKS. NO MARKS ACROSS OR ABOVE COUNTER TOP/BACKSPLASH RACEWAY INDICATES 2#12 CONDUCTORS AND 1 MOTOR STARTER COIL #12 GROUND CONDUCTOR. CONDUCTOR SIZE # LUMINAIRE AND OUTLET BOX, WITH PROVISIONS DUPLEX GFI RECEPTACLE NEMA 5-20R, MT 18" 12 UNLESS INDICATED OTHERWISE, MINIMUM FOR EMERGENCY LIGHTING. LETTER INDICATES LUMINAIRE TYPE. SEE LIGHTING FIXTURE RACEWAY SIZE SHALL BE 3/4" AFF, UIO SCHEDULE. DUPLEX GFI RECEPTACLE NEMA 5-20R, MT 48" RACEWAY EXPOSED TO VIEW AFF OR ABOVE COUNTER TOP/BACKSPLASH WALL MOUNTED LUMINAIRE AND OUTLET BOX. LETTER INDICATES LUMINAIRE TYPE. SEE CONCEALED RACEWAY, LOCATED IN WALL OR DOUBLE-DUPLEX RECEPTACLE NEMA 5-20R, MT LIGHTING FIXTURE SCHEDULE. ABOVE FINISHED CEILING 18" AFF, UIO x⊗ x⊗ CEILING OR WALL MOUNTED EXIT SIGN AND UNDERGROUND RACEWAY, LOCATED BELOW OUTLET BOX. PROVIDE NUMBER OF ARROWS SWITCHED DUPLEX RECEPTACLE NEMA 5-20R, GRADE OR CONCRETE SLAB AND FACES INDICATED. LETTER INDICATES MT 18" AFF, UIO LUMINAIRE TYPE. SEE LIGHTING FIXTURE FLEXIBLE RACEWAY 0 SCHEDULE. WALL MT AT 96" AFF. SWITCHED DUPLEX RECEPTACLE NEMA 5-20R, MT 48" AFF OR ABOVE COUNTER \longrightarrow RACEWAY TURNED TOWARD VIEWER RECESSED OR PENDANT MOUNTED LUMINAIRE TOP/BACKSPLASH AND OUTLET BOX. LETTER INDICATES LUMINAIRE RACEWAY TURNED AWAY FROM VIEWER **---**TYPE. SEE LIGHTING FIXTURE SCHEDULE. SWITCHED DUPLEX GFI RECEPTACLE NEMA 5-20R, MT 18" AFF, UIO RACEWAY TERMINATION, STUB-OUT AND CAP **─** WALL MOUNTED LUMINAIRE AND OUTLET BOX. LETTER INDICATES LUMINAIRE TYPE. SEE SWITCHED DUPLEX GFI RECEPTACLE NEMA PLUG-IN BUSWAY, UIO LIGHTING FIXTURE SCHEDULE. 5-20R, MT 48" AFF OR ABOVE COUNTER TOP/BACKSPLASH SURFACE METAL RACEWAY OR MULTIOUTLET CEILING OR WALL MOUNTED LUMINAIRE AND ASSEMBLY AS INDICATED OUTLET BOX WITH PROVISIONS FOR DOUBLE-DUPLEX GFI RECEPTACLE, NEMA EWC∰ EMERGENCY LIGHTING. 5-20R, MOUNTED CONCEALED BEHIND ELECTRIC \ CABLE TRAY (SIZE AS INDICATED ON PLAN) WATER COOLER EMERGENCY LIGHT UNIT DUCTBANK, TEXT INDICATES QUANTITY AND SIZE OF DUCTS (I.E. 2W4" = TWO 4" DUCTS) FLOOR BOX WITH DUPLEX RECEPTACLE NEMA REMOTE HEAD OR FLOOD LUMINAIRE 5-20R. PROVIDE FIRE RATED POKE THRU LIGHTNING PROTECTION DEVICES ON ALL FLOORS ABOVE GROUND WALL WASH DOWNLIGHT LEVEL. 3/4" x 10'-0" COPPERCLAD GROUND ROD, 18" BFG POLE MOUNTED TYPE SPECIAL RECEPTACLE, NEMA TYPE AS \ominus INDICATED, MT 18" AFF UIO GROUND CONNECTION POST-TOP OR BOLLARD TYPE CEILING BOX WITH DUPLEX RECEPTACLE, NEMA BARE COPPER GROUND CONDUCTOR, 1/0 UIO. **CEILING FAN** — G4 — 4/0 BARE COPPER GROUND CONDUCTOR **EQUIPMENT** RECEPTACLE WP = IN-USE WEATHER PROOF TR = TAMPER RESISTANT LIGHTNING PROTECTION SYSTEM AIR TERMINAL M)_{1/2} TV = TELEVISION, MOUNT AT 60" AFF MOTOR, HORSEPOWER AS INDICATED AFCI = ARC FAULT CIRCUIT INTERRUPTER LIGHTNING PROTECTION ROOF CONDUCTOR MOTORIZED DAMPER FLOOR BOX SUITABLE FOR CONCRETE FLOOR ELECTRICAL CONNECTION 3-POLE COMBINATION MAGNETIC MOTOR POUR; TWO COMPARTMENTS - POWER AND TELECOMMUNICATIONS; FLUSH COVER/FLANGE SITE STARTER/ DISCONNECT (NEMA SIZE/ FUSE SIZE/ WITH HINGED ACCESS TO RECEPTACLES AND NEMA ENCLOSURE) NF = NONFUSED **ELECTRICAL MANHOLE** JACKS RECESSED BELOW COVER IN FLOOR └── _{60/40/3/3}R BOX. PROVIDE 8" FIRE RATED POKE THRU DISCONNECT SWITCH, (SWITCH AMPS/ FUSE SIZE/ POLES/ NEMA ENCLOSURE) NF = NON-ABOVE GROUND FLOOR. ELECTRICAL HANDHOLE FUSED WALL SWITCH, AC TYPE, SPST, MOUNT 48" AFF PAD MOUNTED TRANSFORMER INDIVIDUALLY MOUNTED CIRCUIT BREAKER, (CB SIZE/ POLES/ NEMA ENCLOSURE) WALL SWITCH, AC TYPE, DPDT, MOUNT 48" AFF POWER POLE DRY TYPE TRANSFORMER, KVA AS INDICATED 3-WAY WALL SWITCH, MOUNT 48" AFF DOWN GUY AND ANCHOR (QUANTITY AS INDICATED) MENER 4-WAY WALL SWITCH, MOUNT 48" AFF ONE-LINE ELECTRONIC METER SLIDE DIMMER, MT 48" AFF WW. TRANSFORMER MOTOR RATED DISCONNECT SWITCH WITH PANELBOARD, SEE SCHEDULES THERMAL OVERLOADS, SPST, MT. ON UNIT, UIO. **CURRENT TRANSFORMER** DISTRIBUTION PANELBOARD WALL MOUNTED SPEAKER VOLUME SWITCH, MT. **FUSE** 48" AFF EQUIPMENT AS INDICATED ELECTRICAL CONNECTION (J) (J) WALL MOUNTED, DUAL TECHNOLOGY CEILING OR WALL MOUNTED JUNCTION BOX OCCUPANCY SWITCH, MT. 48" AFF CIRCUIT BREAKER PULL OR JUNCTION BOX LOW VOLTAGE ON/OFF WALL SWITCH, WALL MT. CEILING MOUNTED BLUE LIGHT SYSTEM 48" AFF. PROVIDE DIMMER CONTROL WITH DIMMABLE FIXTURES INTEGRAL WITH SWITCH. --ROTATING BEACON SURGE ARRESTORS WHITE NOISE PLENUM SPEAKER; MT ABOVE CEILING MOUNTED DUAL TECHNOLOGY SEPARABLE CONNECTION OCCUPANCY SENSOR DROP CEILING DRY TYPE TRANSFORMER, K-4 RATED, KVA AS CEILING MOUNTED DAYLIGHT SENSOR BLUE LIGHT LOCAL CONTROL SWITCH; MT 48" INDICATED AFF, UIO GROUND ROD WHITE NOISE ROTARY VOLUME CONTROL; MT 48" AFF, UIO GROUND

SMYRNA UPGRADES

BAWN BY:
BBA
CHECKED BY
JMS
SJ00 Parkway Lane, Suite 500
Peachtree Corners, GA 30092
Phone (678) 336-7740
PINCAL LEGEND
SJ00 Parkway Lane, Suite 500
MWH
PLANCE SJ00 Parkway Lane, Suite 500
PROPERTY SJ00 Parkway Lane, SJ00 Par

SHEET ID
E-002

GENERAL NOTES: 1. REFER TO E-001 & E-002 FOR ELECTRICAL GENERAL NOTES, ABBREVIATIONS & LEGEND. KEYNOTES: 1. FOR MECHANICAL EQUIPMENT, SHOWN, DEMOLISH ALL CORRESPONDING CONDUCTORS AND CONDUITS BACK TO POINT OF SERVICE. REFER TO MECHANICAL PLAN MH101 FOR ADDITIONAL EQUIPMENT INFORMATION. 2. EXISTING GAS UNIT HEATER TO BE RELOCATED. REWORK CIRCUITRY AS REQUIRED TO MAINTAIN EXISTING CIRCUIT. REFER TO MH101 FOR NEW LOCATION.

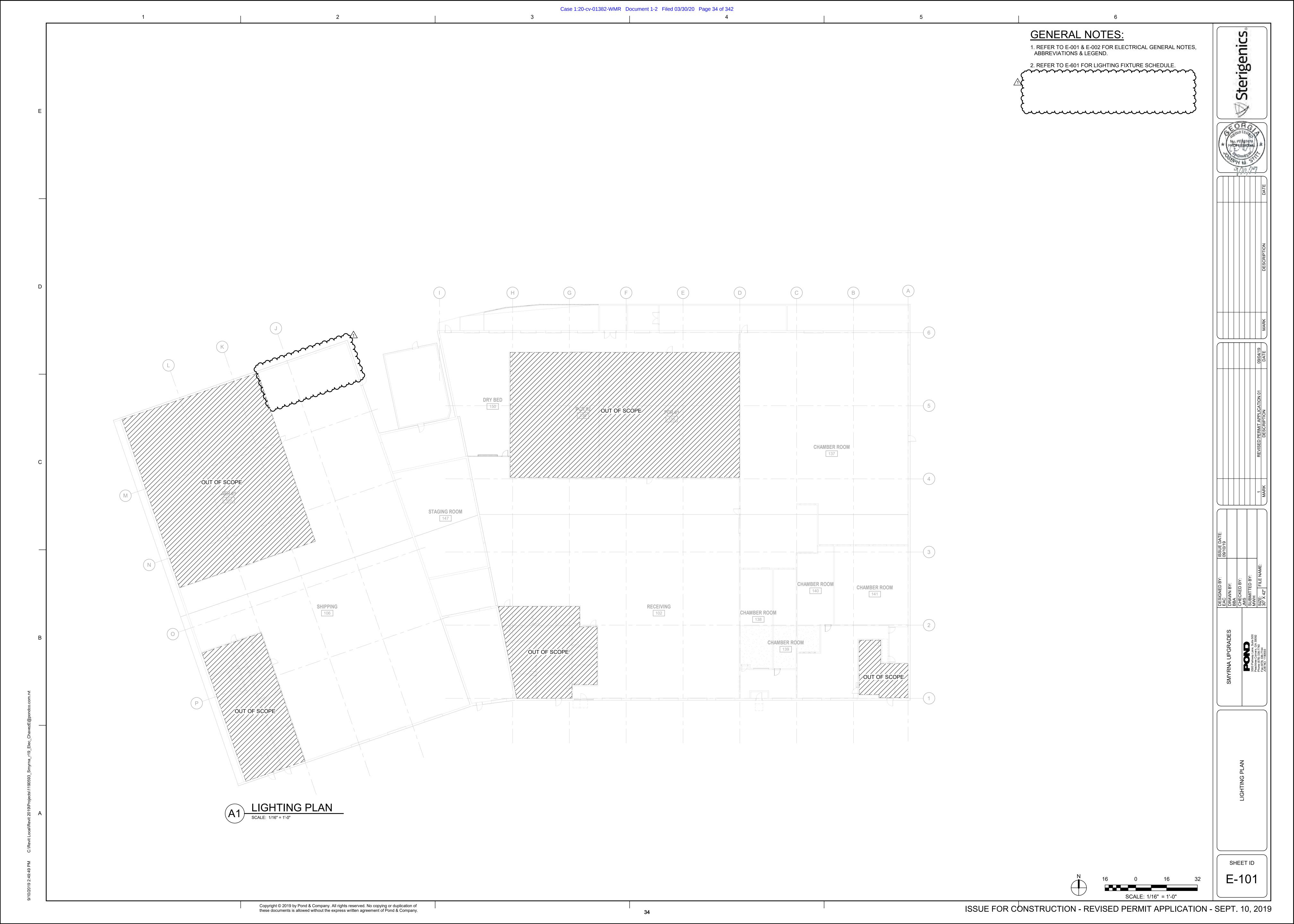
SHEET ID

ED101

OUT OF SCOPE

ELECTRICAL DEMOLITION PLAN

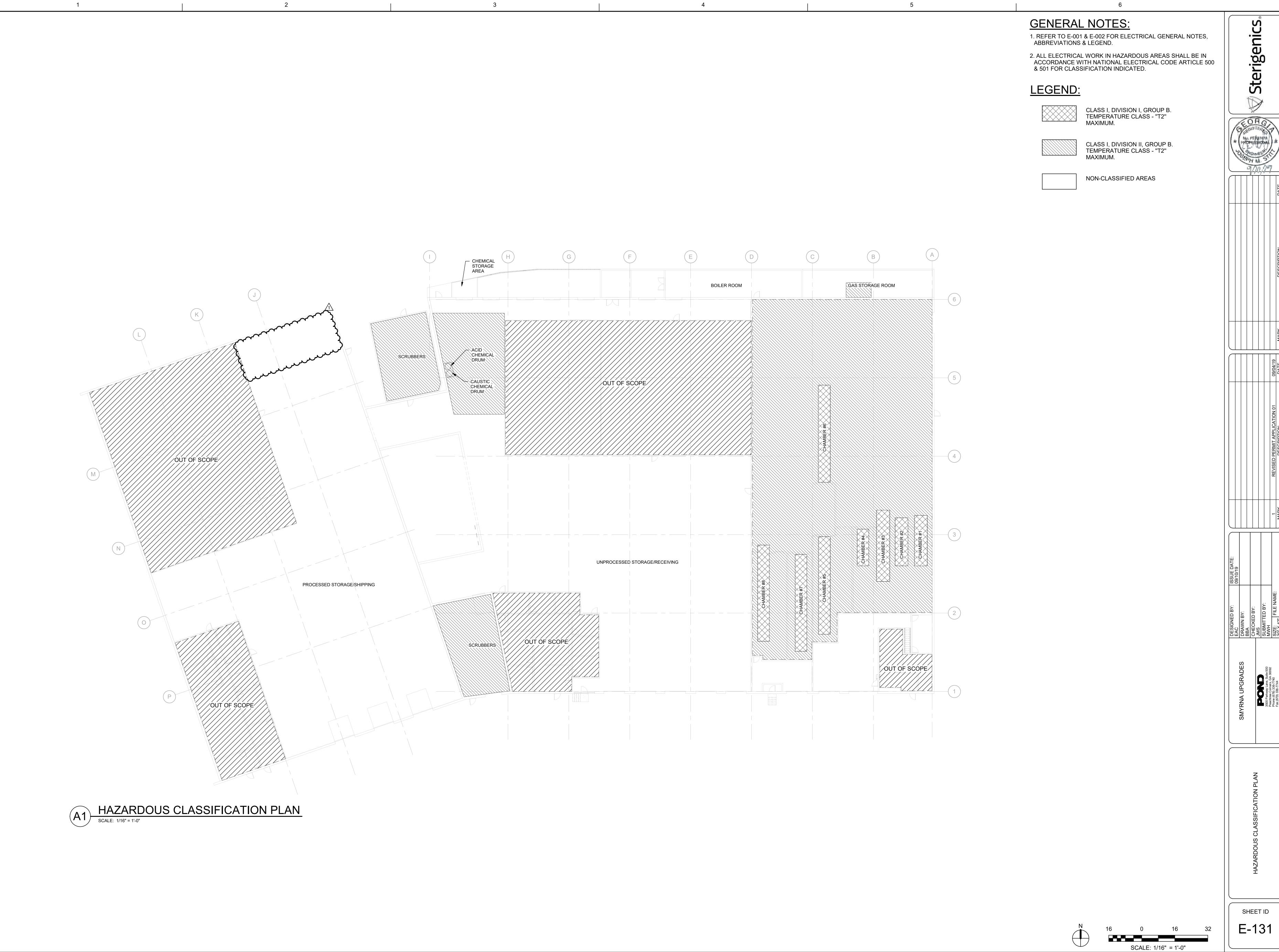
SCALE: 1/16" = 1'-0"



ISSUE FOR CONSTRUCTION - REVISED PERMIT APPLICATION - SEPT. 10, 2019

EXISTING BATTERY CHARGER PANEL

Copyright © 2019 by Pond & Company. All rights reserved. No copying or duplication of these documents is allowed without the express written agreement of Pond & Company.

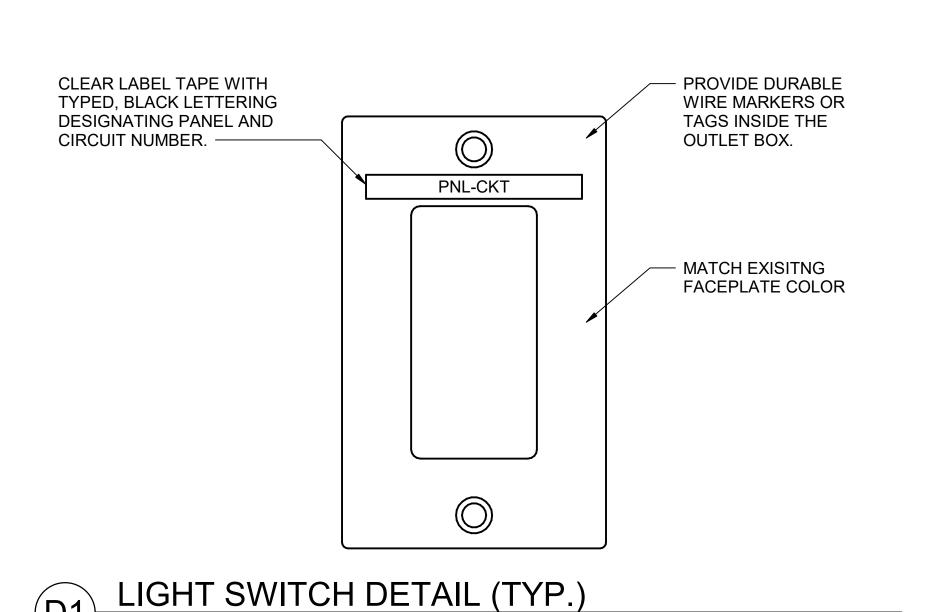


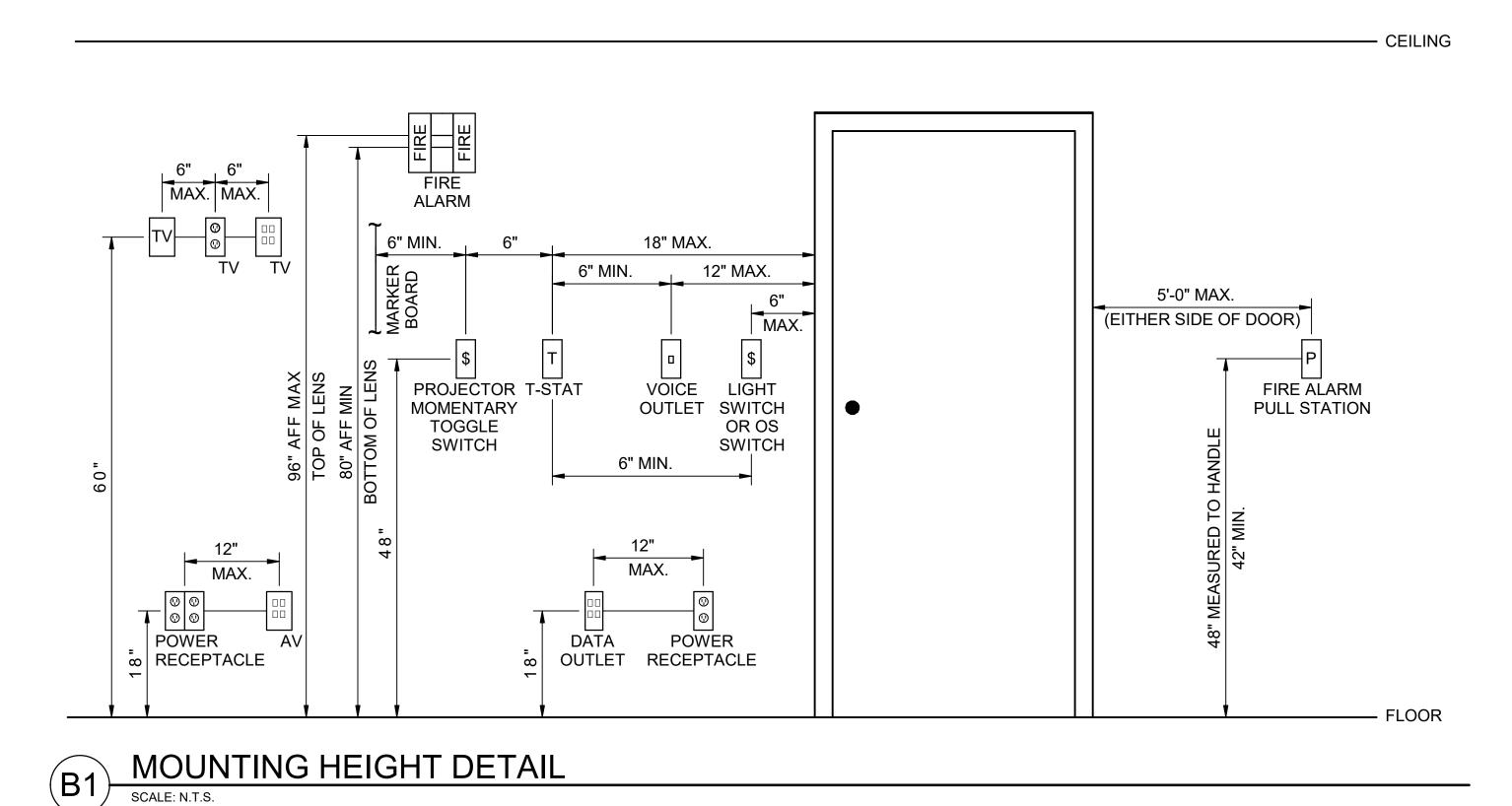
Copyright © 2019 by Pond & Company. All rights reserved. No copying or duplication of these documents is allowed without the express written agreement of Pond & Company.

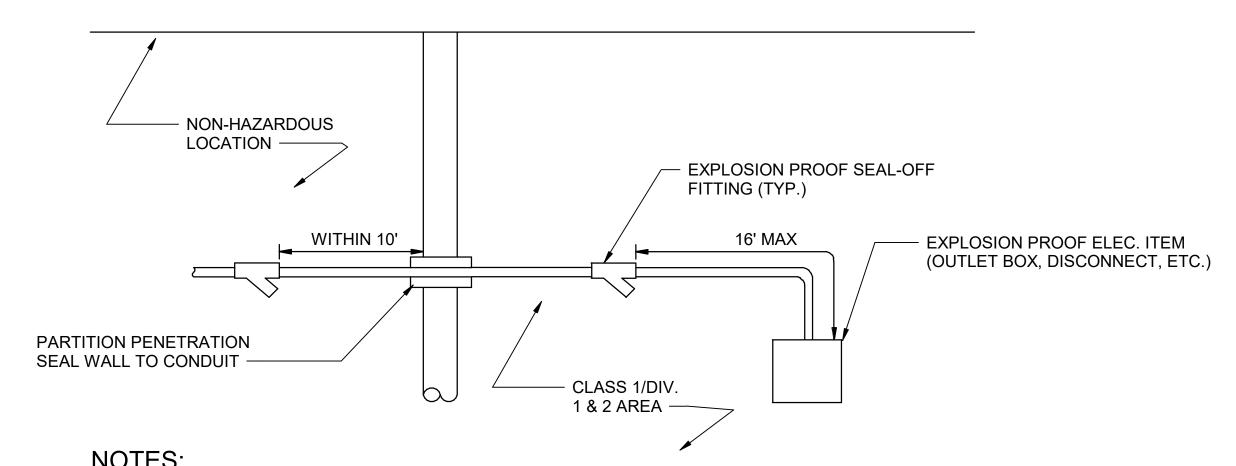
1. REFER TO E-001 & E-002 FOR ELECTRICAL GENERAL NOTES, ABBREVIATIONS & LEGEND.

SHEET ID

E-501





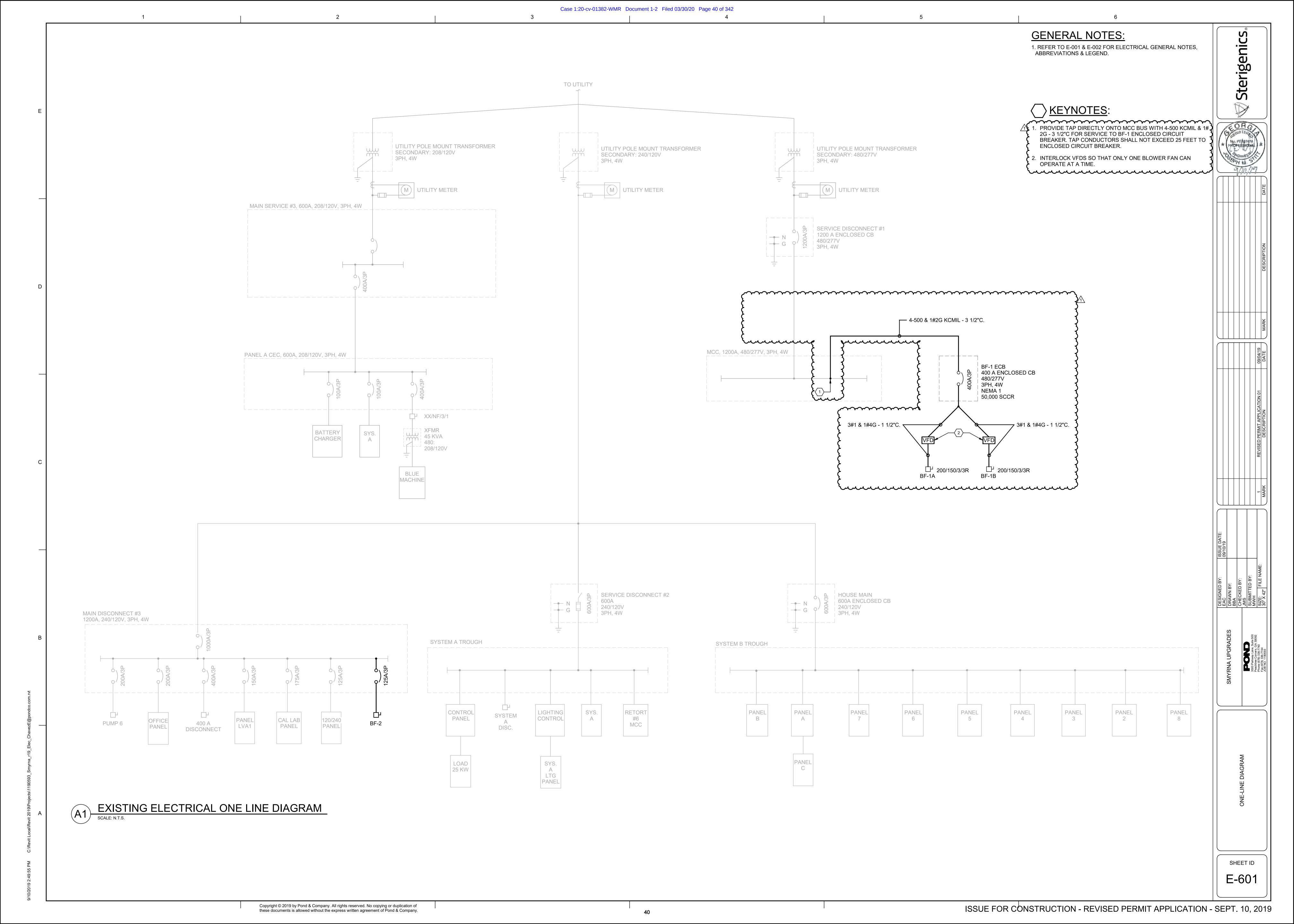


NOTES:

- 1. USE THREADED GRC THROUGHOUT CLASSIFIED AREA AND USE THREAD SEALANT.
- 2. COMPLY WITH NEC 501.
- 3. LISTED EXPLOSION PROOF SEAL-OFF FITTING SHALL BE LOCATED WITHIN 10' OF CLASSIFIED AREA PARTITION OR ENCLOSURE. THE SEAL-OFF FITTING MAY BE INSIDE OR OUTSIDE THE HAZARDOUS LOCATION. USE CONTINUOUS IMC OR RGS WITHOUT COUPLINGS UP TO THE SEAL-OFF FITTING.

B4 CLASS 1, DIVISION 1 & 2 DETAIL

SCALE: N.T.S.



PANEL

BF-1 ECB

BF-1 ECB

SERVICE DISC #3

PANEL 5

PANEL 5

CIRCUIT

32,34,36

31,33,35

LOCATION

ROOF

ROOF

ROOF

ROOF

ROOF

MECHANICAL EQUIPMENT SCHEDULE

75.00 hp | 200/150/3/3R | 3#1 & 1#4G - 1 1/2"C

75.00 hp | 200/150/3/3R | 3#1 & 1#4G - 1 1/2"C

25.00 hp 100/100/3/3R 3#2 & 1#6G - 1 1/4"C

1. ALL CONDUCTORS FOR MECHANICAL AND PLUMBING EQUIPMENT SHALL BE COPPER. THE USE OF ALUMINUM CONDUCTORS TO FEED THIS EQUIPMENT IS NOT PERMITTED.

STARTER

VFD BY OWNER

VFD BY OWNER

VFD BY OWNER

VFD BY OWNER

UNIT VOLTAGE PHASE KVA MCA HP DISCONNECT FEEDER SIZE

240 V 3 1.74 kVA 4.38 A 1.00 hp 30/NF/3/3R 3#12 & 1#12 G - 3/4"C

IF-2 240 V 3 1.74 kVA 4.38 A 1.00 hp 30/NF/3/3R 3#12 & 1#12 G - 3/4"C VFD BY OWNER

480 V 3 79.80 kVA

480 V 3 79.80 kVA

240 V 3 28.26 kVA

3. REDUNDANT FAN (ONLY ONE RUNS AT ANYTIME).

2. VFD PROVIDED WITH EQUIPMENT.

GENERAL NOTES:

1. REFER TO E-001 & E-002 FOR ELECTRICAL GENERAL NOTES, ABBREVIATIONS & LEGEND.

12
(ORO)
G SECULO TERROY
FUTOPERSIONAL
S. Vonne
DAPH M. ST
770,17
/

75
CORO
G GUNTER
No. PENSTITA
CHANNES ST
17/20.5/

2
CORO
COUNTER
/ Constant
No. PENDITTA
NO. PETOZITA
La fendaceamonine
コンシャニーシン
CON CHANGE STA
000
777 W
VI 100 C/F
<u> </u>

{

No. PENSTITA PROPESSIONAL
7/20,97

	(*	(PIN VIN	יייב		どシエ	

				DATE	
				DESCRIPTION	

				DESCRIPTION

			MARK	
		09/04/19	DATE	
		ERMIT APPLICATION 01	ESCRIPTION	

		1	MARK
	<u> </u> -	, JE	

	BY:		ED BY:		SUBMITTED BY:		FILE NAME:	=
EAC	DRAWN BY:	BBA	CHECKED BY:	JMS	SUBMIT	MWH	:3ZIS	30" X 42
)ES					920		

3500 Parkway Lane, Suite 500
Peachtree Comers, GA 30092 Phone (678) 336-7740 Fax (678) 336-7744 JOB NO. 1190593

SHEET ID E-602

Copyright © 2019 by Pond & Company. All rights reserved. No copying or duplication of these documents is allowed without the express written agreement of Pond & Company.

ISSUE FOR CONSTRUCTION - REVISED PERMIT APPLICATION - SEPT. 10, 2019

0.0 kVA

29.3 kVA 70 A

PANEL TOTALS

TOTAL CONN. LOAD 29.26 kVA TOTAL EST. DEMAND: 29.26 kVA

TOTAL CONN. CURRENT: 70 A TOTAL EST DEMAND... 70 A

ESTIMATED...

0.00 kVA

12 SPACE

LOAD CLASSIFICATION:

CONNECTED...

0.00 kVA

DEMAND...

0.00%

NOTES:

LOCATION: RECEIVING 102 SUPPLY FROM: SERVICE DISC #3 MOUNTING: SURFACE ENCLOSURE: NEMA 1					MAINS RATING: 225A MLO VOLTAGE: 120/240 Wye PHASES: 3 WIRES: 4					MINIMUM BREAKER SCCR: 10,000 A			
		T				IECTE							
CKT	CIRCUIT DESCRIPTION	TRIP	POLE		4	ŀ	3	(C	POLE	TRIP	CIRCUIT DESCRIPTION	CKT
1	PRE-CON RM 5 ROLL UP DOOR	30 A	3	0.00	0.00	0.00	0.50			1	20 A		2
3						0.00	0.50	0.00	0.00	1		STEAM COIL CONTROL PANEL	4
5				0.00	0.00			0.00	0.00	1	20 A		6
7 9	RECEPTACLE BY PANEL SPACE	20 A	1	0.00	0.00	0.00	0.00			1	20 A	PRECON #1 FANS SPACE	8 10
11	PRECON #2 LIGHTING	_	1			0.00	0.00	0.00	0.00	1			10
13	PRECON #2 LIGHTING PRECON #2 LIGHTING	20 A 20 A	1	0.00	0.00			0.00	0.00	1	20 A 20 A		14
15	CONTROL PANEL	20 A	1	0.00	0.00	0.50	0.00					SPACE	16
17	PRECON #2 FAN	20 A	1			0.50	0.00	0.00	0.00	1	20 A		18
19	SPACE		<u> </u>	0.00	0.00			0.00	0.00	1	20 A	PRECON #1 HEATER	20
21	SPACE			0.00	0.00	0.00	0.00			2	30 A	SPARE	22
23	PRECON #2 EXIT LIGHT	20 A	1			0.00	0.00	0.00	0.00				24
25	PRECON #2 HEATERS	20 A	1	0.00	0.00			0.00	0.00	3		BOILER RM PANEL	26
27	SPACE		<u> </u>			0.00	0.00						28
29	SPACE							0.00	0.00				30
31	SPARE	20 A	1	0.00	0.00					3	30 A	AIR CURTAIN	32
33	STAGING AREA PANEL	60 A	3			0.00	0.00						34
35								0.00	0.00				36
37				0.00	0.00							SPACE	38
39	SPARE	20 A	1			0.00	0.00					SPACE	40
41	PRECON #2 FAN	20 A	1					0.00	0.00			SPACE	42
NOTES	S:	TOTAL	LOAD:	0.	00	1.	00	0.	00			TOTAL CONNECTED LOAD:	2.4 A

	LOCATION: RECEIVIN SUPPLY FROM: SERVICE MOUNTING: SURFACE ENCLOSURE: NEMA 1		MAINS RATING: 225A MLO VOLTAGE: 120/240 Wye PHASES: 3 WIRES: 4 CONNECTED LOAD KVA						MINIMUM BREAKER SCCR: 10,000 A				
_			_							_			
CKT	CIRCUIT DESCRIPTION	TRIP	POLE		4	l	В	(POLE	TRIP	CIRCUIT DESCRIPTION	СКТ
1	PRE-CON RM 5 ROLL UP DOOR	30 A	3	0.00	0.00	0.00	0.50			1		PRECON #1 LIGHTING	2
3						0.00	0.50	0.00	0.00	1	20 A	STEAM COIL CONTROL PANEL	4
5				0.00	0.00			0.00	0.00	1	20 A	PRECON #1 LIGHTING	6
7	RECEPTACLE BY PANEL	20 A	1	0.00	0.00	0.00	0.00			1	20 A	PRECON #1 FANS	8
9	SPACE					0.00	0.00					SPACE	10
11	PRECON #2 LIGHTING	20 A	1		0.00			0.00	0.00	1	20 A	PRECON #1 FANS	12
13	PRECON #2 LIGHTING	20 A	1	0.00	0.00	0.50	0.00			1	20 A	PRECON #1 HEATER	14
15	CONTROL PANEL	20 A	1			0.50	0.00	0.00	0.00			SPACE	16
17	PRECON #2 FAN	20 A	1					0.00	0.00	1		PRECON #1 EXIT LIGHT	18
19	SPACE			0.00	0.00					1	20 A	PRECON #1 HEATER	20
21	SPACE					0.00	0.00			2	30 A	SPARE	22
23	PRECON #2 EXIT LIGHT	20 A	1					0.00	0.00				24
25	PRECON #2 HEATERS	20 A	1	0.00	0.00					3	100 A	BOILER RM PANEL	26
27	SPACE					0.00	0.00	0.05	0.05				28
29	SPACE							0.00	0.00				30
31	SPARE	20 A	1	0.00	0.00					3	30 A	AIR CURTAIN	32
33	STAGING AREA PANEL	60 A	3			0.00	0.00						34
35				_				0.00	0.00				36
37				0.00	0.00							SPACE	38
39	SPARE	20 A	1			0.00	0.00					SPACE	40
41	PRECON #2 FAN	20 A	1					0.00	0.00			SPACE	42

	LOCATION: RECEIVING OF SUPPLY FROM: HOUSE MAIN MOUNTING: SURFACE ENCLOSURE: NEMA 1		N	BREAKER SCCR: 10,000 A							
	1			CON	NECTE	D LOAD	KVA			I	1
СКТ	CIRCUIT DESCRIPTION	TRIP	POLE		4	E	3	POLE	TRIP	CIRCUIT DESCRIPTION	Cł
1	MAINT SHOP TEST STATION	30 A	3	0.00	0.00			3	20 A	BATT CH 2	2
3				0.00	0.00	0.00	0.00				4
5				0.00	0.00		0.55				6
7	SPARE	15 A	3			0.00	0.00	3	30 A	DOORS @ AERATION 13	3
9				0.00	0.00						1
11						0.00	0.00				1:
13	MOD'S	20 A	1	1.92	0.00			3	20 A	REAR WALL EXHAUST FANS	1
15	SPACE					0.00	0.00				10
17	SPARE	50 A	2	0.00	0.00						1
19						0.00	0.00	3	50 A	EXISTING LOAD	2
21	OVERHEAD DOOR CONTROL BOX	20 A	3	0.64	0.00						2
23						0.64	0.00				2
25				0.64	0.00			3	40 A	5 TON RTU	2
27	SPACE					0.00	0.00				2
29	SPACE			0.00	0.00						3
31	SPACE					0.00	0.00			SPACE	3
33	SPACE			0.00	0.00					SPACE	3
35	SPACE					0.00	0.00	2	100 A	PANEL C	3
37	SPACE			0.00	0.00						3
39	SPACE					0.00	0.00			SPACE	4
41	SPACE			0.00	0.00					SPACE	4
I		TOTA	L LOAD:	2.	56	0.	64			TOTAL CONNECTED LOAD:	9.2

	LOCATION: OUTSIDE CONTROL RM SUPPLY FROM: HOUSE MAIN MOUNTING: SURFACE ENCLOSURE: NEMA 1			VOI PI		-		M	INIMUM	BREAKER SCCR: 10,000 A	
				CON	NECTE	D LOAD	KVA				
СКТ	CIRCUIT DESCRIPTION	TRIP	POLE	,	4	ı	В	POLE	TRIP	CIRCUIT DESCRIPTION	Cł
1	SPARE	50 A	3	0.00	0.00			3	30 A	SPARE	2
3						0.00	0.00				4
5				0.00	0.00						6
7	AIR COMPRESSOR	100 A	3			0.00	0.00	3	20 A	EXAUST FAN (PROCESS AREA)	8
9				0.00	0.00						1
11						0.00	0.00				1.
13	ROOF TOP STACK EXHAUST	20 A	3	0.00	0.00			3	40 A	SPARE	1-
15						0.00	0.00				1
17				0.00	0.00						1
19	SPARE	60 A	3			0.00	0.00	3	20 A	EXISTING LOAD	2
21				0.00	0.00						2
23						0.00	0.00				2
25	EXISTING LOAD	15 A	3	0.00	0.00			3	70 A	P1	2
27						0.00	0.00				2
29				0.00	0.00						3
31	IF-2	20 A	3			0.58	0.58	3	20 A	IF-1	3
33				0.58	0.58						3
35						0.58	0.58				3
37	REC - ROOF	20 A	1	0.18	0.00					SPACE	3
39	SPACE					0.00	0.00			SPACE	4
		TOTA	L LOAD:	1	34	1	16			TOTAL CONNECTED LOAD:	8.8

GENERAL NOTES:

1. REFER TO E-001 & E-002 FOR ELECTRICAL GENERAL NOTES, ABBREVIATIONS & LEGEND.

> KEYNOTES:

 PROVIDE AND INSTALL COMPATIBLE CIRCUIT BREAKER IN ELECTRICAL PANEL, SIZE AS INDICATED. PROVIDE NEW UPDATED TYPED PANEL SCHEDULES.

					DESCRIPTION	
					MARK	
				09/04/19	DATE	
				REVISED PERMIT APPLICATION 01	DESCRIPTION	

DESIGNED BY: EAC	DRAWN BY: BBA	CHECKED BY:	JMS	SHRMITTED BY:		الالالالالا	SIZE	30" X 42" "EL 18" """	2+ V 00	
	SMYRNA UPGRADES				3500 Parkway Lane, Suite 500	Peachtree Corners, GA 30092	Phone (678) 336-7740	Fax (678) 336-7744	JUBING. 1190393	
								_	ر (

SHEET ID E-603 NATIONAL ELECTRICAL CODE.

DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY, WHAT IS FLEXIBLE METAL CONDUIT: UL 1 CALLED FOR BY ONE SHALL BE PROVIDED AS IF CALLED FOR IN BOTH. IN THE EVENT THERE IS A DISCREPANCY BETWEEN THE DRAWINGS AND SPECIFICATIONS, THE MORE STRICT OR HIGHER QUALITY SHALL BE PROVIDED.

CONTRACTOR SHALL FIELD VERIFY FIELD ALL DIMENSIONS PRIOR PURCHASING EQUIPMENT.

ELECTRICAL MATERIALS AND EQUIPMENT SHALL MEET THE REQUIREMENTS OF UL, WHERE UL STANDARDS ARE ESTABLISHED INTERIOR CONDUIT NOT EXPOSED TO PHYSICAL DAMAGE OR IN FOR THOSE ITEMS.

ALL ELECTRICAL WORK SHALL BE INSTALLED IN ACCORDANCE WITH NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION (NECA) PROVIDE A PULL STRING IN ALL SPARE CONDUITS. NATIONAL ELECTRICAL INSTALLATION STANDARDS (NEIS). WORK WHICH DOES NOT COMPLY WITH NEIS SHALL BE GROUNDS FOR REJECTION OF WORK. THE OWNER AND ENGINEER RESERVE THE RIGHT TO INSPECT ALL WORK AND HAVE CONTRACTOR TEST AND DEMONSTRATE FUNCTIONALLY OF ALL ELECTRICAL WORK.

ALL ITEMS INDICATED TO BE DEMOLISHED SHALL BE DISCONNECTED, REMOVED FROM THE SITE AND DEPOSED OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL LAWS AND CODES. CONTRACTOR SHALL NOT REUSE DEMOLISHED ITEMS UNLESS SPECIFICALLY INDICATED ON THE DRAWINGS. THE CONTRACTOR SHALL REMOVE ALL USED MATERIAL AND SCRAP RELATIVE TO THE ELECTRICAL INSTALLATION AND LEAVE THE PREMISES IN CLEAN AND ORDERLY CONDITION. WHERE ITEMS ARE NOT INDICATED TO BE DEMOLISHED, THE ASSOCIATED CIRCUITRY AND CONDUIT SHALL BE REWORKED TO MAINTAIN CIRCUIT CONTINUITY TO ITEMS TO REMAIN.

ALL ELECTRICAL WORK SHALL BE WARRANTED BY CONTRACTOR FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE TO INCLUDE ALL PARTS AND LABOR.

SUBMITTALS FOR APPROVAL

PRODUCT DATA: SUBMIT PRODUCT DATA FOR THE FOLLOWING

- ITEMS: CONDUIT CONDUCTORS
- DISCONNECT SWITCHES CIRCUIT BREAKERS VARIABLE FREQUENCY DRIVES

TEST RESULTS; SUBMIT FIELD TEST RESULTS FOR THE **FOLLOWING ITEMS:** VARIABLE FREQUENCY DRIVES

OPERATIONS AND MAINTENANCE (O&M) DATA: SUBMIT O&M DATA FOR THE FOLLOWING ITEMS: VARIABLE FREQUENCY DRIVES

WIRE AND CABLES

UNLESS OTHERWISE INDICATED, ALL CONDUCTORS SHALL BE COPPER WITH TYPE THHN/THWN INSULATION. CONDUCTORS NUMBER 8 AWG AND LARGER SHALL BE STRANDED. NUMBER 10 AWG AND NUMBER 12 AWG CONDUCTORS SHALL BE SOLID. CONDUCTORS FOR REMOTE CONTROL, ALARM AND SIGNAL CIRCUITS, CLASSES 1, 2 AND 3 SHALL BE STRANDED.

ALL MULTI-WIRE BRANCH CIRCUITS SHALL BE EQUIPPED WITH DEDICATED NEUTRALS. WHERE HOMERUNS ARE GROUPED TOGETHER, PROVIDE THREE HOT CONDUCTORS, THREE NEUTRAL CONDUCTORS, AND ONE GROUND CONDUCTOR. NEUTRAL CONDUCTORS SHALL BE CONSIDERED AS CURRENT CARRYING CONDUCTORS. WHEN GROUPING HOME RUNS, CONDUCTOR SIZES SHALL BE ADJUSTED IN ACCORDANCE WITH NFPA 70 DUE TO NUMBER OF CURRENT CARRYING CONDUCTORS.

NEATLY TRAIN AND LACE WIRING INSIDE BOXES, ENCLOSURES AND PANELBOARDS.

CONDUIT AND FITTINGS

GALVANIZED RIGID STEEL CONDUIT (GRS): UL 6

ELECTRICAL METALLIC TUBING (EMT): UL 797

LIQUID-TIGHT FLEXIBLE METAL CONDUIT: UL 360

STEEL OUTLET BOXES AND COVERS: UL 514A

METAL CONDUIT AND EMT FITTINGS: UL 514B

EXTERIOR ABOVE GRADE CONDUIT SHALL BE GRS OR IMC.

HAZARDOUS CLASSIFICATION AREAS SHALL BE EMT. EMT FITTINGS SHALL BE STEEL COMPRESSION TYPE.

PROVIDE FLEXIBLE STEEL CONDUIT BETWEEN 3 AND 6 FEET IN LENGTH FOR RECESSED AND SEMI-RECESSED LIGHTING FIXTURES: FOR EQUIPMENT SUBJECT TO VIBRATION, NOISE TRANSMISSION, OR MOVEMENT; AND FOR MOTORS. INSTALL FLEXIBLE CONDUIT TO ALLOW 20 PERCENT SLACK. PROVIDE LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT IN WET AND DAMP LOCATIONS FOR EQUIPMENT SUBJECT TO VIBRATION, NOISE TRANSMISSION, MOVEMENT OR MOTORS. PROVIDE SEPARATE GROUND CONDUCTOR ACROSS FLEXIBLE CONNECTIONS.

SUPPORT CONDUIT IN ACCORDANCE WITH NEC.

MINIMUM CONDUIT SIZE SHALL BE 3/4".

PROVIDE A CONDUIT SEAL IN EACH CONDUIT RUN LEAVING A CLASS I, DIVISION 2 LOCATION. THE CONDUIT RUN BETWEEN THE CONDUIT SEAL AND THE POINT AT WHICH THE CONDUIT LEAVES THE DIVISION 2 LOCATION SHALL CONTAIN NO UNION COUPLING, BOX OR OTHER FITTING EXCEPT FOR A LISTED EXPLOSION PROOF REDUCER INSTALLED AT THE CONDUIT SEAL. RIGID METAL CONDUIT OR THREADED STEEL INTERMEDIATE METAL CONDUIT SHALL BE USED BETWEEN SEAL FITTING AND POINT AT WHICH CONDUIT LEAVES DIVISION 2 LOCATION WITH A THREADED CONNECTION AT THE SEAL FITTING. PROVIDE A CONDUIT SEAL FOR CONNECTIONS TO ENCLOSURES THAT ARE REQUIRED TO BE EXPLOSION PROOF.

CABINETS, JUNCTION BOXES AND PULL BOXES

UL 50, ZINC COATED SHEET STEEL

OUTLET BOXES SHALL BE A MINIMUM OF 12-1/2 INCH DEEP. VOLUME OF BOXES SHALL EXCEED NEC REQUIRED VOLUME FOR QUANTITY AND SIZE OF CONDUCTORS CONTAINED.

GROUNDING AND BONDING

GROUND RODS: UL 508, 3/4" X 10' COPPER CLAD STEEL

PROVIDE A GROUND CONDUCTOR IN ALL RACEWAYS.

MAXIMUM RESISTANCE TO GROUND SHALL NOT EXCEED 25 OHMS.

HANGARS AND SUPPORTS

SUPPORT CONDUIT BY PIPE STRAPS, WALL BRACKETS, THREADED ROD CONDUIT HANGERS, OR CEILING TRAPEZE. FASTEN BY WOOD SCREWS TO WOOD; BY TOGGLE BOLTS ON HOLLOW MASONRY UNITS; BY CONCRETE INSERTS OR EXPANSION BOLTS ON CONCRETE OR BRICK; AND BY MACHINE SCREWS, WELDED THREADED STUDS, OR SPRING-TENSION CLAMPS ON STEEL WORK. THREADED C-CLAMPS MAY BE USED ON RIGID STEEL CONDUIT ONLY. DO NOT WELD CONDUITS OR PIPE STRAPS TO STEEL STRUCTURES. DO NOT EXCEED ONE-FOURTH PROOF TEST LOAD FOR LOAD APPLIED TO FASTENERS. PROVIDE VIBRATION RESISTANT AND SHOCK-RESISTANT FASTENERS ATTACHED TO CONCRETE CEILING. DO NOT CUT MAIN REINFORCING BARS FOR ANY HOLES CUT TO DEPTH OF MORE THAN 1-1/2 INCHES IN REINFORCED CONCRETE BEAMS OR TO DEPTH OF MORE THAN 3/4 INCH IN CONCRETE JOINTS. IN PARTITIONS OF LIGHT STEEL CONSTRUCTION, USE SHEET METAL SCREWS. IN SUSPENDED-CEILING CONSTRUCTION, RUN CONDUIT ABOVE CEILING. DO NOT SUPPORT CONDUIT BY CEILING SUPPORT SYSTEM. CONDUIT AND BOX SYSTEMS: SUPPORTED INDEPENDENTLY OF BOTH (A) TIE WIRES SUPPORTING CEILING GRID SYSTEM, AND (B) CEILING GRID SYSTEM INTO WHICH CEILING PANELS ARE PLACED. DO NOT SHARE SUPPORTING MEANS BETWEEN ELECTRICAL RACEWAYS AND MECHANICAL PIPING OR DUCTS, COORDINATE INSTALLATION WITH ABOVE-CEILING MECHANICAL SYSTEMS TO ASSURE MAXIMUM ACCESSIBILITY TO ALL SYSTEMS. SPRING-STEEL FASTENERS MAY BE USED FOR LIGHTING BRANCH CIRCUIT CONDUIT SUPPORTS IN SUSPENDED CEILINGS IN DRY LOCATIONS. WHERE CONDUIT CROSSES BUILDING EXPANSION JOINTS, PROVIDE SUITABLE [WATERTIGHT] EXPANSION FITTING THAT MAINTAINS CONDUIT ELECTRICAL CONTINUITY BY BONDING JUMPERS OR OTHER MEANS. FOR CONDUITS GREATER THAN 2-1/2 INCHES INSIDE DIAMETER, PROVIDE SUPPORTS TO RESIST FORCES OF 0.5 TIMES THE EQUIPMENT WEIGHT IN ANY DIRECTION AND 1.5 TIMES THE EQUIPMENT WEIGHT IN THE DOWNWARD DIRECTION.

MAKE CHANGES IN DIRECTION OF RUNS WITH SYMMETRICAL BENDS OR CAST-METAL FITTINGS. MAKE FIELD-MADE BENDS AND OFFSETS WITH HICKEY OR CONDUIT-BENDING MACHINE. DO NOT INSTALL CRUSHED OR DEFORMED CONDUITS. AVOID TRAPPED CONDUITS. PREVENT PLASTER, DIRT, OR TRASH FROM LODGING IN CONDUITS, BOXES, FITTINGS, AND EQUIPMENT DURING CONSTRUCTION. FREE CLOGGED CONDUITS OF OBSTRUCTIONS.

FASTEN CONDUITS TO SHEET METAL BOXES AND CABINETS WITH TWO LOCKNUTS WHERE REQUIRED BY NFPA 70, WHERE INSULATED BUSHINGS ARE USED, AND WHERE BUSHINGS CANNOT BE BROUGHT INTO FIRM CONTACT WITH THE BOX; OTHERWISE, USE AT LEAST MINIMUM SINGLE LOCKNUT AND BUSHING. PROVIDE LOCKNUTS WITH SHARP EDGES FOR DIGGING INTO WALL OF METAL ENCLOSURES. INSTALL BUSHINGS ON ENDS OF CONDUITS AND PROVIDE INSULATING TYPE WHERE REQUIRED BY NFPA 70.

IDENTIFICATION

PANELBOARDS: PROVIDE TYPE OR COMPUTER PRINTED CIRCUIT DIRECTORY INSIDE THE COVER DOOR. DIRECTORY SHALL INDICATE TYPE LOAD SERVED AND ROOM NUMBER(S) WHERE LOADS ARE LOCATED.

CONDUCTOR COLOR CODING: GROUNDING CONDUCTORS: GREEN NEUTRAL CONDUCTORS: WHITE OR GRAY 120/240V PHASE CONDUCTORS: BLACK / RED 208Y/120V PHASE CONDUCTORS: BLACK / RED / BLUE 480Y/277V PHASE CONDUCTORS: BROWN / ORANGE / YELLOW

RECEPTACLES: PROVIDE LABEL ON EACH RECEPTACLE COVER PLATE TO INDICATE PANEL AND CIRCUIT NUMBER. LABEL SHALL BE TYPED, ADHESIVE BACKED.

PROVIDE NEC REQUIRED SIGNS AND LABELS. SIGNS AND LABELS SHALL INCLUDE BUT AT NOT LIMITED TO: SERVICE ENTRANCES (NEC 230.2(E)). ARC FLASH (NEC 110.16): DISCONNECT MEANS (NEC 110.22); AND SERVICE EQUIPMENT AVAILABLE FAULT CURRENT (NEC 110.24)

DISCONNECT SWITCHES

NEMA KS 1. PROVIDE HEAVY DUTY-TYPE SWITCHES WHERE INDICATED, WHERE SWITCHES ARE RATED HIGHER THAN 240 VOLTS, AND FOR DOUBLE-THROW SWITCHES. UTILIZE CLASS R FUSE HOLDERS AND FUSES FOR FUSED SWITCHES, UNLESS INDICATED OTHERWISE. PROVIDE HORSEPOWER RATED FOR SWITCHES SERVING AS THE MOTOR-DISCONNECT MEANS. PROVIDE SWITCHES IN NEMA ENCLOSURE AS INDICATED.

LIGHTNING PROTECTION

PROVIDE A SYSTEM CONSISTING OF THE LATEST UL LISTED PRODUCTS OF A MANUFACTURER REGULARLY ENGAGED IN PRODUCTION OF LIGHTNING PROTECTION SYSTEM COMPONENTS. COMPLY WITH NFPA 70, NFPA 780, AND UL 96.

DO NOT USE A COMBINATION OF MATERIALS THAT FORMS AN ELECTROLYTIC COUPLE OF SUCH NATURE THAT CORROSION IS ACCELERATED IN THE PRESENCE OF MOISTURE UNLESS MOISTURE IS PERMANENTLY EXCLUDED FROM THE JUNCTION OF SUCH METALS. COORDINATE WITH THE ROOFING MANUFACTURER AND PROVIDE CERTIFICATION THAT THE ROOF MANUFACTURER'S WARRANTY IS NOT VIOLATED BY THE INSTALLATION METHODS FOR AIR TERMINALS AND ROOF CONDUCTORS.

PROVIDE SOLID AIR TERMINALS WITH A BLUNT TIP. SUPPORT AIR TERMINALS MORE THAN 24 INCHES IN LENGTH BY SUITABLE BRACE, SUPPORTED AT NOT LESS THAN ONE-HALF THE HEIGHT OF THE TERMINAL

USE ADHESIVE SHOES WITH ADHESIVE APPROVED BY THE ROOF MANUFACTURER WHEN INSTALLING ROOF CONDUCTORS ON "RUBBER" (EPDM) TYPE ROOFS. [USE A STANDING SEAM BASE FOR INSTALLATION OF ROOF CONDUCTORS ON A STANDING SEAM METAL ROOF THAT DOES NOT PRODUCE ANY ROOF PENETRATIONS.

PROVIDE CERTIFICATION FROM A COMMERCIAL THIRD-PARTY INSPECTION COMPANY WHOSE SOLE WORK IS LIGHTNING PROTECTION, STATING THAT THE LIGHTNING PROTECTION SYSTEM COMPLIES WITH NFPA 780. THIRD PARTY INSPECTION COMPANY CANNOT BE THE SYSTEM INSTALLER OR THE SYSTEM DESIGNER. ALTERNATIVELY, PROVIDE A UL LIGHTNING PROTECTION INSPECTION MASTER LABEL CERTIFICATE FOR EACH FACILITY INDICATING COMPLIANCE TO NFPA 780.

INTERIOR LIGHTING

UL 1598 AND UL 8750. PROVIDE LUMINAIRES AS INDICATED IN LUMINAIRE SCHEDULE ON PROJECT PLANS. PROVIDE LUMINAIRES COMPLETE WITH LIGHT SOURCES OF QUANTITY, TYPE, AND WATTAGE INDICATED. PROVIDE ALL LUMINAIRES OF THE SAME TYPE BY THE SAME MANUFACTURER. LUMINAIRES MUST BE SPECIFICALLY DESIGNED FOR USE WITH THE DRIVER AND LIGHT SOURCE PROVIDED.

PROVIDE LED LUMINAIRES COMPLETE WITH POWER SUPPLIES (DRIVERS) AND LIGHT SOURCES. LED LUMINAIRES MUST MEET THE MINIMUM REQUIREMENTS:

LUMINAIRES MUST HAVE A MINIMUM 5 YEAR MANUFACTURER'S WARRANTY.

LUMINAIRES MUST HAVE A MINIMUM L70 LUMEN MAINTENANCE VALUE OF 50,000 HOURS AS CALCULATED BY IES TM-21, WITH DATA OBTAINED PER IES LM-80 REQUIREMENTS.

LUMINAIRE DRIVE CURRENT VALUE MUST BE IDENTICAL TO THAT PROVIDED BY TEST DATA FOR LUMINAIRE IN QUESTION.

LUMINAIRES MUST BE TESTED TO IES LM-79 AND IES LM-80 STANDARDS.

LUMINAIRES MUST BE LISTED WITH THE DESIGN LIGHTS CONSORTIUM 'QUALIFIED PRODUCTS LIST' WHEN FALLING INTO CATEGORY OF "GENERAL APPLICATION" LUMINAIRES, I.E INTERIOR DIRECTIONAL, DISPLAY CASE, TROFFER, LINEAR AMBIENT, OR LOW/HIGH BAY.

LED DRIVERS SHALL MEET NEMA SSL 1 AND UL 8750. LED DRIVERS MUST BE ELECTRONIC. UL CLASS 1. CONSTANT-CURRENT TYPE AND COMPLY WITH THE FOLLOWING **REQUIREMENTS:**

OUTPUT POWER (WATTS)AND LUMINOUS FLUX (LUMENS) AS SHOWN IN LUMINAIRE SCHEDULE FOR EACH LUMINAIRE TYPE TO MEET MINIMUM LUMINAIRE EFFICACY (LE) VALUE PROVIDED.

POWER FACTOR (PF) GREATER THAN OR EQUAL TO 0.9 OVER THE FULL DIMMING RANGE WHEN PROVIDED.

CURRENT DRAW TOTAL HARMONIC DISTORTION (THD) OF LESS THAN 20 PERCENT.

CLASS A SOUND RATING.

OPERABLE AT INPUT VOLTAGE OF 120-277 VOLTS AT 60 HERTZ.

MINIMUM 5 YEAR MANUFACTURER'S WARRANTY.

ROHS COMPLIANT.

INTEGRAL THERMAL PROTECTION THAT REDUCES OR ELIMINATES THE OUTPUT POWER IF CASE TEMPERATURE EXCEEDS A VALUE DETRIMENTAL TO THE DRIVER.

UL LISTED FOR DRY OR DAMP LOCATIONS TYPICAL OF INTERIOR INSTALLATIONS.

FULLY-DIMMABLE USING 0-10V CONTROL

FIXTURE SUPPORT WIRES: ASTM A641/A641M; GALVANIZED, SOFT TEMPERED STEEL. MINIMUM 0.11 INCHES IN DIAMETER. OR GALVANIZED, BRAIDED STEEL, MINIMUM 0.08 INCHES IN DIAMETER.

PROVIDE LIGHTING FIXTURE SUPPORT WIRES INDEPENDENT OF THE CEILING GRID SUPPORT WIRES. PROVIDE A MINIMUM OF FOUR SUPPORT WIRES PER FIXTURE WITH WIRE CONNECTED NEAR CORNERS OF FIXTURE.

PENDANT MOUNTED FIXTURES SHALL BE SUPPORTED VIA THREADED ROD, STAINLESS STEEL AIRCRAFT CABLE, OR CONDUIT AS INDICATED IN THE LIGHTING FIXTURE SCHEDULE.

PROVIDE HANGERS CAPABLE OF SUPPORTING TWICE THE COMBINED WEIGHT OF LUMINAIRES SUPPORTED BY HANGERS. PROVIDE WITH SWIVEL HANGERS TO ENSURE A PLUMB INSTALLATION. PROVIDE CADMIUM-PLATED STEEL WITH A SWIVEL-BALL TAPPED FOR THE CONDUIT SIZE INDICATED. HANGERS MUST ALLOW FIXTURES TO SWING WITHIN AN ANGLE OF 45 DEGREES. BRACE PENDANTS 4 FEET OR LONGER TO LIMIT SWINGING. SINGLE-UNIT SUSPENDED LUMINAIRES MUST HAVE TWIN-STEM HANGERS. MULTIPLE-UNIT OR CONTINUOUS ROW LUMINAIRES MUST HAVE A TUBING OR STEM FOR WIRING AT ONE POINT AND A TUBING OR ROD SUSPENSION PROVIDED FOR EACH UNIT LENGTH OF CHASSIS, INCLUDING ONE AT EACH END. PROVIDE RODS IN MINIMUM 0.18 INCH DIAMETER.



)					DESCRIPTION	
					MARK	
					DATE	
					DESCRIPTION	

DRAWN BY: BBA	CHECKED BY:	JMS	SUBMITTED BY:		LIVAIN	SIZE	2	30 A 42	
SMYRNA UPGRADES				3500 Parkway Lane, Suite 500	Peachtree Corners, GA 30092	Phone (678) 336-7740	Fax (678) 336-7744	JOB NO. 1190593	

SHEET ID E-701

Exhibit 30

Rogers, Tarrah

From: Janet Rau <jmrauga@gmail.com>
Sent: Friday, September 20, 2019 11:34 AM

To: Bob.Ott@cobbcounty.org; lisa.cupid@cobbcounty.org; mike.boyce@cobbcounty.org

Cc: Tony Adams; coons.jeff@gmail.com; Andrea Pawlak
Subject: Serious concerns regarding permits of Sterigenics

Commissioners,

Our group, Stop Sterigenics GA, has serious concerns regarding the current permits for the construction at the Sterigenics facility.

We have a consulting industrial construction professional who is able to sit down with all of you and any members of your staff to discuss these concerns in person.

Please let me know when we might be able to arrange a time to meet. It can be done digitally if that is easier to achieve.

Below is a summary of the major areas:

- 1. The plan checker from Cobb County Community Development has issued a permit in 2019 on a set of drawings that reference 2012 building code and a occupancy of F-1 and S-1 when the permit cover sheet clearly specifies "Industrial high-hazard" facility.
- 2. The plan checker from Cobb County fails to necessitate an environmental review by the Georgia EPD of the design set submitted for plan check. A high-hazard facility should immediately trigger an environmental study that is mandated by the GEPD. A full NEPA compliant Environmental Impact Report should be mandated in order for a permit to be issued on a Georgia Building Code Group H-1 or H-2 facility.
- 3. Cobb County has issued permits for the past 12 years (since 2007) for Sterigenics and Prologis (tenant and landlord) on the basis of a storage facility (S-1) when in fact the facility is a high-hazard since its occupancy and operation of the space.
- 4. The current building permit that is issued by Cobb County does not reflect a design that is compliant with a Georgia building-code "high-hazard" facility Group H-1 or H-2.
- 5. Sterigenics is in direct violation of section 13 and 14 of the Special Land Use Permit from the GEPD in 1994 and approved by the Board of Commissioners of Cobb County by "circumventing" and "modifying" the facility without proper notification to the Georgia EPD and should therefore be subject to current code compliance and environmental impact studies in order to be issued a building permit.
- 6. The Georgia EPD, with the information provided to date, has failed to police and monitor the actions of Sterigenics since its last known inspections in 1995. The GEPD has not been made aware by Cobb County Community Development of the permits that have been pulled by Sterigenics that would require the agency's review.
- 7. The fire department and fire marshal have signed off on building permits with a S-1 "storage occupancy" since 2007 while knowing that the use of the facility is a high-hazard facility. After each permit is closed a certificate of occupancy is granted by the fire department and fire marshal on a designed system that does not meet the code requirements of a H-1 or H-2 facility.
- 8. The permits that have been pulled by Sterigenics and issued by Cobb County directly violate the terms of the special land use agreement, but also appear to be "timely" in the repairs of the mechanical systems that directly emit the pollutant from 2007 through 2015; backed by the reports of excessive emissions at record levels. Only until after the permits are closed and the repairs made do the reports dictate the emissions fall back in line with the regulated levels.

We continue to work diligently to help find ways to ensure that the safety of our communities is able to be paramount in the decision making around this issue. If I can help in any way, please let me know.

Sincerely.

Janet Rau

President, Stop Sterigenics GA

Cc: SSGA executive board members

CAUTION: This email originated outside Cobb County Government. Please exercise caution when opening links/attachments in this email .

Exhibit 31

----- Forwarded message ------

From: Janet Rau < imrauga@gmail.com > Date: Fri, Sep 20, 2019 at 2:47 PM

Subject: Fwd: Serious concerns regarding permits of Sterigenics

To: <rmanins@mdjonline.com>

------ Forwarded message -------From: Janet Rau < imrauga@gmail.com>

Date: Fri, Sep 20, 2019, 11:33 AM

Subject: Serious concerns regarding permits of Sterigenics

To: <Bob.Ott@cobbcounty.org>, isa.cupid@cobbcounty.org>, <mike.boyce@cobbcounty.org>

Cc: Tony Adams < tkaadams@gmail.com >, < coons.jeff@gmail.com >, Andrea Pawlak < alpawlak@gmail.com >

Commissioners,

Our group, Stop Sterigenics GA, has serious concerns regarding the current permits for the construction at the Sterigenics facility.

We have a consulting industrial construction professional who is able to sit down with all of you and any members of your staff to discuss these concerns in person.

Please let me know when we might be able to arrange a time to meet. It can be done digitally if that is easier to achieve.

Below is a summary of the major areas:

- 1. The plan checker from Cobb County Community Development has issued a permit in 2019 on a set of drawings that reference 2012 building code and a occupancy of F-1 and S-1 when the permit cover sheet clearly specifies "Industrial high-hazard" facility.
- 2. The plan checker from Cobb County fails to necessitate an environmental review by the Georgia EPD of the design set submitted for plan check. A high-hazard facility should immediately trigger an environmental study that is mandated by the GEPD. A full NEPA compliant Environmental Impact Report should be mandated in order for a permit to be issued on a Georgia Building Code Group H-1 or H-2 facility.
- 3. Cobb County has issued permits for the past 12 years (since 2007) for Sterigenics and Prologis (tenant and landlord) on the basis of a storage facility (S-1) when in fact the facility is a high-hazard since its occupancy and operation of the space.
- 4. The current building permit that is issued by Cobb County does not reflect a design that is compliant with a Georgia building-code "high-hazard" facility Group H-1 or H-2.

Case 1:20-cv-01382-WMR Document 1-2 Filed 03/30/20 Page 49 of 342

- 5. Sterigenics is in direct violation of section 13 and 14 of the Special Land Use Permit from the GEPD in 1994 and approved by the Board of Commissioners of Cobb County by "circumventing" and "modifying" the facility without proper notification to the Georgia EPD and should therefore be subject to current code compliance and environmental impact studies in order to be issued a building permit.
- 6. The Georgia EPD, with the information provided to date, has failed to police and monitor the actions of Sterigenics since its last known inspections in 1995. The GEPD has not been made aware by Cobb County Community Development of the permits that have been pulled by Sterigenics that would require the agency's review.
- 7. The fire department and fire marshal have signed off on building permits with a S-1 "storage occupancy" since 2007 while knowing that the use of the facility is a high-hazard facility. After each permit is closed a certificate of occupancy is granted by the fire department and fire marshal on a designed system that does not meet the code requirements of a H-1 or H-2 facility.
- 8. The permits that have been pulled by Sterigenics and issued by Cobb County directly violate the terms of the special land use agreement, but also appear to be "timely" in the repairs of the mechanical systems that directly emit the pollutant from 2007 through 2015; backed by the reports of excessive emissions at record levels. Only until after the permits are closed and the repairs made do the reports dictate the emissions fall back in line with the regulated levels.

We continue to work diligently to help find ways to ensure that the safety of our communities is able to be paramount in the decision making around this issue. If I can help in any way, please let me know.

Sincerely,

Janet Rau President, Stop Sterigenics GA

Cc: SSGA executive board members

Rosie Manins Breaking News Reporter Marietta Daily Journal

Cell: 480-489-7018

Office: 770-428-9411 ext. 220 Email: rmanins@mdjonline.com

Address: 47 Waddell Street SE, Marietta, GA, 30060

This email has been scanned by the Symantec Email Security.cloud service. For more information please visit http://www.symanteccloud.com

Exhibit 32

https://www.mdjonline.com/news/cobb-investigates-sterigenics-plant-s-change-in-occupancy-status/article_b2b2997c-dbbd-11e9-9e27-37d002bf02ca.html

ALERT

Cobb investigates Sterigenics plant's change in occupancy status

By Rosie Manins rmanins@mdjonline.com Sep 20, 2019



The Sterigenics plant in Cobb County.
Rosie Manins

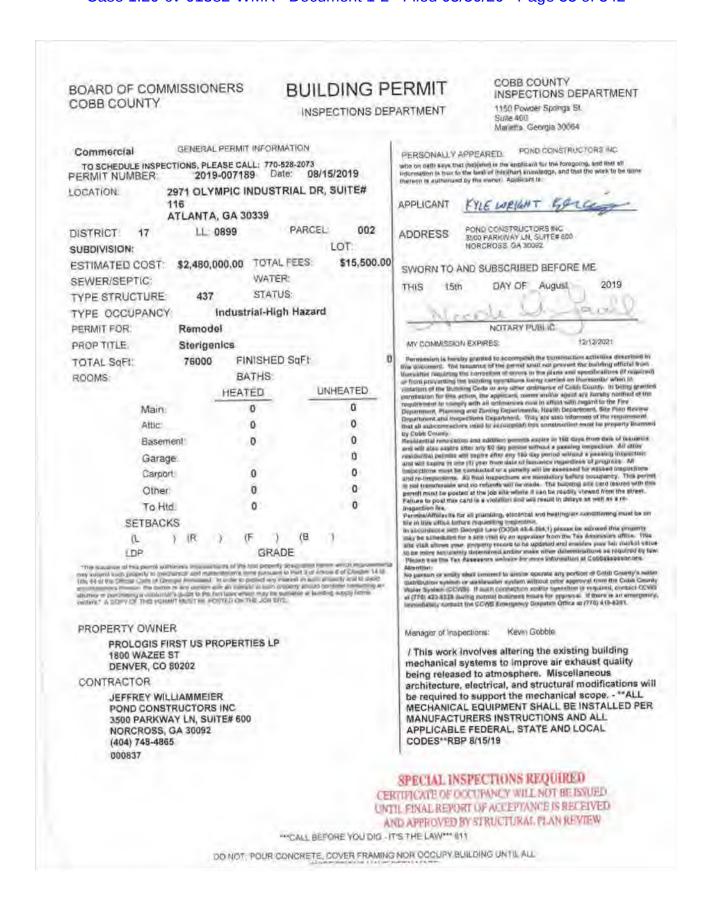
Cobb County is investigating a sudden change in building occupancy status by Sterigenics in regards to its controversial medical sterilization facility near Smyrna.

Cobb investigates Sterigenics plant's change in occupancy status | News | mdjonline.com Page 2 of 19 Case 1:20-cv-01382-WMR Document 1-2 Filed 03/30/20 Page 52 of 342

The company recently obtained a building permit from the county to install extra measures to capture and control emissions of the carcinogenic chemical ethylene oxide, which it uses in gas form to sterilize over a million medical devices every day.

The permit is here:

♣ Download PDF



Ethylene oxide is highly combustible and when combined with water it forms the main

Cobb investigates Sterigenics plant's change in occupancy status | News | mdjonline.com Page 4 of 19 Case 1:20-cv-01382-WMR Document 1-2 Filed 03/30/20 Page 54 of 342

ingredient used in antifreeze.

In the Aug. 15 permit documents, Sterigenics lists its building occupancy type as "industrial-high hazard," despite previously listing it as "storage."

This change in status prompted the county's Development and Inspections Division to review whether this move is warranted, Cobb communications director Ross Cavitt told the MDJ on Thursday.

"It was only when Sterigenics applied for a permit in late July for their current project did they list a change in their occupancy status," he said. "During this review, the county has placed a hold on the company's permit request. This review is ongoing."

The permit allows Sterigenics to complete the emissions control work, which began on Aug. 26 and is expected to finish in early October.

But the permit also states Sterigenics is subject to investigation by building officials and must comply with all current legislation, county ordinances and health and safety requirements, as well as correct any errors found in its plans and specifications.

Cavitt said Sterigenics, which has occupied its site off Atlanta Road for decades, listed its occupancy status as storage as recently as 2007, and this did not change when it applied for permits for various work in 2014 and 2015, when back vents were installed on emissions chambers inside the plant.

He provided additional information to the MDJ Friday afternoon, clarifying the county's response to the recent Sterigenics permit application.

The county did initially issue a permit to Sterigenics for some "exhaust and scrubbing work" that was required by the Georgia Environmental Protection Division, Cavitt said.

"There were concerns about this permit from the fire marshal and the development and inspections division manager that prompted a meeting," he said. "During that subsequent meeting, Sterigenics officials indicated they needed a revision of their plans and a new process."

Cavitt said this prompted the fire marshal to apply the new occupancy status of industrialhigh hazard and review the plant as it relates to that designation, in conjunction with the county's chief building official.

The change in status from storage to industrial-high hazard requires a thorough look at the facility in question, a host of extra safety measures and involvement from the Georgia EPD, according to a nonprofit opposed to Sterigenics operating near Smyrna close to homes, schools and churches in the south Cobb area.

Stop Sterigenics Georgia, which has over 1,500 followers on its public Facebook page and 4,500 members in a private Facebook group, sent a letter detailing its concerns to the Cobb County government Friday, members told the MDJ.

The letter relates specifically to the company's recent permit and change in occupancy status.

Group members told the MDJ they want the Sterigenics plant to be shut down until the company can prove it's complying with all current federal, state and county laws.

"Sterigenics is in direct violation of section 13 and 14 of the Special Land Use Permit from the Georgia EPD in 1994 and approved by the Board of Commissioners of Cobb County by circumventing and modifying the facility without proper notification to the Georgia EPD and should therefore be subject to current code compliance and environmental impact studies in order to be issued a building permit," the group's letter states.

Members are also critical of the Georgia EPD, claiming the state agency has dropped the ball in its obligation to ensure dangerous chemicals being used commercially don't put people's health at risk.

Cobb investigates Sterigenics plant's change in occupancy status | News | mdjonline.com Page 6 of 19 Case 1:20-cv-01382-WMR Document 1-2 Filed 03/30/20 Page 56 of 342

The latest modeling on Sterigenics emissions of ethylene oxide from its Cobb plant show there are higher cancer risks surrounding the facility than what federal regulators deem acceptable for long-term exposure. This has been known by the Georgia EPD for over a year.

"The Georgia EPD, with the information provided to date, has failed to police and monitor the actions of Sterigenics since 1995," Stop Sterigenics Georgia's letter to the county states.

Georgia EPD spokesman Kevin Chambers said the agency's last inspection of the Cobb Sterigenics plant was on Oct. 25, 2017.

The inspection report is here:

♣ Download PDF



Ricand E. Dunn, Director

Air Protection Branch

4244 International Parkway Suite 120 Atlanta, Georgia 30354 404-363-7000

Compliance Monitoring Report

General Information

Date of Inspection:

October 25, 2017

Date of Report Completed:

October 31, 2017

Compliance Monitoring Category:

Unannounced Inspection

Inspector Name:

Sherry Waldron

Reviewing Manager:

Michael Odom -17 230

2. **Facility Information**

Facility Name:

Sterigenics U.S. LLC

Facility AIRS No.:

067-00093

Facility Location:

2971 Olympic Industrial Drive SE, Suite 116

Atlanta, Georgia 30339, Cobb County

Facility Mailing Address:

2015 Spring Road, Suite 650 Oak Brook, Illinois 60523

Facility Contact:

Susan Reinhardt Manager EH&S 630-928-1768

sreinhardt@sterigenics.com Daryl Mosby, General Manager

404-355-4485

dmosby@sterigenics.com

Rich Pyant, Maintenance Supervisor

CMS Designation:

Synthetic Minor Source

Air Quality Permit No. 7389-067-0093-S-05-0

Effective Date: May 27, 2014

Issued for the operation of an ethylene oxide and propylene oxide sterilization facility. The Permit is also for the installation and operation of a 30-pallet sterilization chamber and an aeration room.

Inspection Report Sterigenics U.S. LLC - Atlanta, Georgia AIRS No. 067-0093 Page 1 of 10 Cobb investigates Sterigenics plant's change in occupancy status | News | mdjonline.com Page 8 of 19 Case 1:20-cv-01382-WMR Document 1-2 Filed 03/30/20 Page 58 of 342

Stop Sterigenics Georgia has also lodged official comments with the Georgia EPD regarding a permit application filed with the state agency by Sterigenics at the end of July for the emissions control work currently being undertaken.

The EPD hastily approved a consent order for the work, despite not receiving required detail from Sterigenics, the group claimed, in conjunction with Environment Georgia and the Georgia chapter of the Sierra Club.

"Because Sterigenics has failed to submit a high-quality application as required by EPD's procedures for expediting permitting, EPD should reject the application and require correction of the deficiencies described above," the three environmental organizations stated in their Sept. 12 comments, for which they received assistance from environmental regulation experts and the Southern Environmental Law Center.

The comments to the Georgia EPD are here:



SOUTHERN ENVIRONMENTAL LAW CENTER

Telephone 404-521-9900

TEN 10TH STREET NW. SUITE 1050 ATLANTA, GA 30309-3848 Facsimile 404-521-9909

September 12, 2019

VIA E-MAIL

Mr. Eric Cornwell
Program Manager
Stationary Source Permitting
Georgia Environmental Protection Division – Air Protection Branch
4244 International Parkway, Suite 120
Atlanta, Georgia 30354-3906
askepd@gaepd.org

SIP Permit Application for Sterigenics, Atlanta Facility Permit No. 7389-067—0093-S-05-0

Dear Mr. Cornwell:

Please accept the following comments on the above-referenced permit application, which was filed with the Georgia Environmental Protection Division on July 30, 2019. We take the unusual step of commenting on a permit application because EPD does not plan to issue a draft permit for public comment. Instead, EPD has invited interested members of the public to comment on the permit application. These comments are submitted on behalf of Stop Sterigenics GA, Inc., Environment Georgia, and the Georgia Chapter of the Sierra Club.

Stop Sterigenics GA is a non-profit grassroots organization of concerned citizens, businesses, and community stakeholders aligned with the mission to smartly, swiftly, and strategically remove the source of human carcinogens such as ethylene oxide (EtO) emitted into their community. Environment Georgia works statewide to ensure all Georgians can enjoy clean air, clean water, and greenspaces. The Sierra Club is America's largest and most influential grassroots environmental organization, with more than 3.5 million members and supporters working in part to safeguard the health of our communities.

While we are pleased that EPD has agreed to accept comment on the permit application, we note EPD has already claimed to have approved the plans therein – indeed, to have done so a

Charlottesville • Chapel Hill • Atlanta • Asheville • Birmingham • Charleston • Nashville • Richmond • Washington, DC 100% recycled paper.

While the county is reviewing Sterigenics's change in occupancy status for its Cobb plant,

county staff are under no obligation to inspect the building per state law, Cavitt said.

He provided the MDJ with the fire marshal's summary of tenant spaces that do have to be inspected, which include buildings more than three stories, those used by three or more families, schools, racetracks, stadiums, grandstands, large assembly venues, churches, daycare centers and assisted living facilities.

Gov. Brian Kemp's office is also investigating the Sterigenics facility in Cobb County amid widespread public concern its emissions are cancer-causing.

Kemp met with the MDJ this week, but had little to say on the subject, simply stating the investigation is ongoing and therefore he has to be careful about commenting.

Sterigenics spokesman Bryan Locke sent the MDJ a statement Friday evening stating the company "submitted a local building permit application for its facility to install enhancements to the air emission control systems."

"That permit was granted," Locke said. "The sole purpose of the new equipment is to reduce emissions and the construction to install that equipment remains on track."

He said the work does not change the sterilization operations at the facility.

"We have been cooperating fully with local and state authorities throughout this process and will continue to do so."

MORE INFORMATION											

Exhibit 33



BUILDING CODE®

A Member of the International Code Family®

Recorded to the second second

Become a **Building Safety Professional Member** and Learn More about the Code Council

GO TO WWW.ICCSAFE.ORG for All Your Technical and Professional Needs Including:

- > Codes, Standards and Guidelines
- > Membership Benefits
- > Education and Certification
- > Communications on Industry News

2012 International Building Code®

First Printing: May 2011 Second Printing: June 2011

ISBN:978-1-60983-040-3 (soft-cover edition) ISBN: 978-1-60983-039-7 (loose-leaf edition)

COPYRIGHT © 2011 by INTERNATIONAL CODE COUNCIL, INC.

ALL RIGHTS RESERVED. This 2012 *International Building Code*[®] is a copyrighted work owned by the International Code Council, Inc. Without advance written permission from the copyright owner, no part of this book may be reproduced, distributed or transmitted in any form or by any means, including, without limitation, electronic, optical or mechanical means (by way of example, and not limitation, photocopying, or recording by or in an information storage retrieval system). For information on permission to copy material exceeding fair use, please contact: Publications, 4051 West Flossmoor Road, Country Club Hills, IL 60478-5795. Phone 1-888-ICC-SAFE (422-7233).

Trademarks: "International Code Council," the "International Code Council" logo and the "International Building Code" are trademarks of the International Code Council, Inc.

PRINTED IN THE U.S.A.

USE AND OCCUPANCY CLASSIFICATION

WATER-REACTIVE MATERIAL.

Class 3.

Class 2.

Class 1.

[F] 307.3 High-hazard Group H-1. Buildings and structures containing materials that pose a detonation hazard shall be classified as Group H-1. Such materials shall include, but not be limited to, the following:

Detonable pyrophoric materials Explosives:

Division 1.1

Division 1.2

Division 1.3

Division 1.4

Division 1.5

Division 1.6

Organic peroxides, unclassified detonable

Oxidizers, Class 4

Unstable (reactive) materials, Class 3 detonable and Class 4

[F] 307.3.1 Occupancies containing explosives not classified as H-1. The following occupancies containing explosive materials shall be classified as follows:

- 1. Division 1.3 explosive materials that are used and maintained in a form where either confinement or configuration will not elevate the hazard from a mass fire to mass explosion hazard shall be allowed in H-2 occupancies.
- 2. Articles, including articles packaged for shipment, that are not regulated as a Division 1.4 explosive under Bureau of Alcohol, Tobacco, Firearms and Exoplosives regulations, or unpackaged articles used in process operations that do not propagate a detonation or deflagration between articles shall be allowed in H-3 occupancies.

[F] TABLE 307.1(1)

MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIALS POSING A PHYSICAL HAZARD^{a, j, m, n, p}

		GROUP		STORAGE ^b		USE-C	LOSED SYS	TEMS ^b	USE-OPEN SYSTEMS ^b		
MATERIAL	CLASS	WHEN THE MAXIMUM ALLOWABLE QUANTITY IS EXCEEDED	Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas (cubic feet at NTP)	Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas (cubic feet at NTP)	Solid pounds (cubic feet)	Liquid gallons (pounds)	
Combustible dust	N/A	H-2	Note q	N/A	N/A	Note q	N/A	N/A	Note q	N/A	
Combustible liquid ^{c, i}	II IIIA IIIB	H-2 or H-3 H-2 or H-3 N/A	N/A	120 ^{d, e} 330 ^{d, e} 13,200 ^{e, f}	N/A	N/A	120 ^d 330 ^d 13,200 ^f	N/A	N/A	30 ^d 80 ^d 3,300 ^f	
Combustible fiber	Loose Baled ^o	Н-3	(100) (1,000)	N/A	N/A	(100) (1,000)	N/A	N/A	(20) (200)	N/A	
Consumer fireworks	1.4G	Н-3	$125^{d,e,1}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Cryogenics, flammable	N/A	H-2	N/A	45 ^d	N/A	N/A	45 ^d	N/A	N/A	10 ^d	
Cryogenics, inert	N/A	N/A	N/A	N/A	NL	N/A	N/A	NL	N/A	N/A	
Cryogenics, oxidizing	N/A	H-3	N/A	45 ^d	N/A	N/A	45 ^d	N/A	N/A	10 ^d	
Explosives	Division 1.1 Division 1.2 Division 1.3 Division 1.4 Division 1.4G Division 1.5 Division 1.6	H-1 H-1 or H-2 H-3 H-3 H-1 H-1	1 ^{e, g} 1 ^{e, g} 5 ^{e, g} 50 ^{e, g} 125 ^{d, e, 1} 1 ^{e, g} 1 ^{d, e, g}	(1) ^{e, g} (1) ^{c, g} (5) ^{e, g} (50) ^{e, g} N/A (1) ^{e, g} N/A	N/A N/A N/A N/A N/A N/A	0.25 ^g 0.25 ^g 1 ^g 50 ^g N/A 0.25 ^g N/A	(0.25) ^g (0.25) ^g (1) ^g (50) ^g N/A (0.25) ^g N/A	N/A N/A N/A N/A N/A N/A	0.25 ^g 0.25 ^g 1 ^g N/A N/A 0.25 ^g N/A	(0.25) ^g (0.25) ^g (1) ^g N/A N/A (0.25) ^g N/A	
Flammable gas	Gaseous Liquefied	H-2	N/A	N/A (150) ^{d,e}	1,000 ^{d,e} N/A	N/A	N/A (150) ^{d,e}	1,000 ^{d,e} N/A	N/A	N/A	
Flammable liquid ^c	1A 1B and 1C	H-2 or H-3	N/A	30 ^{d, e} 120 ^{d, e}	N/A	N/A	30 ^d 120 ^d	N/A	N/A	10 ^d 30 ^d	
Flammable liquid, combination (1A, 1B, 1C)	N/A	H-2 or H-3	N/A	120 ^{d, e, h}	N/A	N/A	120 ^{d, h}	N/A	N/A	30 ^{d, h}	

(continued)

[F] TABLE 307.1(1)—(continued) MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIALS POSING A PHYSICAL HAZARD^{a, i, m, n, p}

		GROUP		STORAGE		USE-C	LOSED SYS	TEMS	USE-OPEN SYSTEMS ^b		
MATERIAL	CLASS	WHEN THE MAXIMUM ALLOWABLE QUANTITY IS EXCEEDED	Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas (cubic feet at NTP)	Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas (cubic feet at NTP)	Solid pounds (cubic feet)	Liquid gallons (pounds)	
Flammable solid	N/A	H-3	125 ^{d, e}	N/A	N/A	125 ^d	N/A	N/A	25 ^d	N/A	
Inert gas	Gaseous	N/A	N/A	N/A	NL	N/A	N/A	NL	N/A	N/A	
mert gas	Liquefied	N/A	N/A	N/A	NL	N/A	N/A	NL	N/A	N/A	
	UD	H-1	1 ^{e, g}	(1) ^{e, g}	N/A	0.25^{g}	$(0.25)^g$	N/A	0.25 ^g	$(0.25)^g$	
	I	H-2	5 ^{d, e}	(5) ^{d, e}	N/A	1^d	(1) ^d	N/A	1^d	(1) ^d	
Organic peroxide	II	H-3	50 ^{d, e}	(50) ^{d, e}	N/A	50 ^d	(50) ^d	N/A	10 ^d	$(10)^{d}$	
Organic peroxide	III	H-3	125 ^{d, e}	(125) ^{d, e}	N/A	125 ^d	$(125)^{d}$	N/A	25 ^d	(25) ^d	
	IV	N/A	NL	NL	N/A	NL	NL	N/A	NL	NL	
	V	N/A	NL	NL	N/A	NL	NL	N/A	NL	NL	
	4	H-1	1 ^{e, g}	(1) ^{e, g}	N/A	0.25 ^g	$(0.25)^g$	N/A	0.25^{g}	$(0.25)^g$	
Oxidizer	3 ^k	H-2 or H-3	10 ^{d, e}	$(10)^{d, e}$	N/A	2 ^d	(2) ^d	N/A	2^d	(2) ^d	
Oxidizei	2	H-3	250 ^{d, e}	(250) ^{d, e}	N/A	250 ^d	(250) ^d	N/A	50^{d}	(50) ^d	
	1	N/A	4,000 ^{e, f}	(4,000) ^{e, f}	N/A	$4,000^{f}$	$(4,000)^{f}$	N/A	$1,000^{\rm f}$	$(1,000)^{f}$	
Ovidiaina ass	Gaseous	H-3	N/A	N/A	1,500 ^{d,e}	N/A	N/A	1,500 ^{d,e}	N/A	N/A	
Oxidizing gas	Liquefied	п-3	N/A	(150) ^{d,e}	N/A	N/A	$(150)^{d,e}$	N/A	N/A	N/A	
Pyrophoric material	N/A	H-2	4 ^{e, g}	(4) ^{e, g}	50 ^{e, g}	1 ^g	(1) ^g	10 ^g	0	0	
	4	H-1	1 ^{e, g}	(1) ^{e, g}	10 ^g	0.25 ^g	$(0.25)^g$	2 ^{e, g}	0.25g	$(0.25)^g$	
Limatable (magative)	3	H-1 or H-2	5 ^{d, e}	(5) ^{d, e}	50 ^{d, e}	1 ^d	(1) ^d	10 ^{d, e}	1^d	$(1)^d$	
Unstable (reactive)	2	H-3	50 ^{d, e}	(50) ^{d, e}	250 ^{d, e}	50 ^d	$(50)^{d}$	250 ^{d, e}	10^{d}	(10) ^d	
	1	N/A	NL	NL	NL	NL	NL	NL	NL	NL	
	3	H-2	5 ^{d, e}	(5) ^{d, e}	N/A	5 ^d	(5) ^d	N/A	1 ^d	(1) ^d	
Water reactive	2	H-3	50 ^{d, e}	(50) ^{d, e}	N/A	50 ^d	(50) ^d	N/A	10^{d}	(10) ^d	
	1	N/A	NL	NL	N/A	NL	NL	N/A	NL	NL	

For SI: 1 cubic foot = 0.028 m^3 , 1 pound = 0.454 kg, 1 gallon = 3.785 L.

NL = Not Limited; N/A = Not Applicable; UD = Unclassified Detonable

- a. For use of control areas, see Section 414.2.
- b. The aggregate quantity in use and storage shall not exceed the quantity listed for storage.
- c. The quantities of alcoholic beverages in retail and wholesale sales occupancies shall not be limited provided the liquids are packaged in individual containers not exceeding 1.3 gallons. In retail and wholesale sales occupancies, the quantities of medicines, foodstuffs, consumer or industrial products, and cosmetics containing not more than 50 percent by volume of water-miscible liquids with the remainder of the solutions not being flammable, shall not be limited, provided that such materials are packaged in individual containers not exceeding 1.3 gallons.
- d. Maximum allowable quantities shall be increased 100 percent in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1. Where Note e also applies, the increase for both notes shall be applied accumulatively.
- e. Maximum allowable quantities shall be increased 100 percent when stored in *approved* storage cabinets, day boxes, gas cabinets or exhausted enclosures or in *listed* safety cans in accordance with Section 5003.9.10 of the *International Fire Code*. Where Note d also applies, the increase for both notes shall be applied accumulatively.
- f. The permitted quantities shall not be limited in a building equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
- g. Permitted only in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
- h. Containing not more than the maximum allowable quantity per control area of Class IA, IB or IC flammable liquids.
- i. The maximum allowable quantity shall not apply to fuel oil storage complying with Section 603.3.2 of the International Fire Code.
- j. Quantities in parenthesis indicate quantity units in parenthesis at the head of each column.
- k. A maximum quantity of 200 pounds of solid or 20 gallons of liquid Class 3 oxidizers is allowed when such materials are necessary for maintenance purposes, operation or sanitation of equipment. Storage containers and the manner of storage shall be *approved*.
- 1. Net weight of the pyrotechnic composition of the fireworks. Where the net weight of the pyrotechnic composition of the fireworks is not known, 25 percent of the gross weight of the fireworks, including packaging, shall be used.
- m. For gallons of liquids, divide the amount in pounds by 10 in accordance with Section 5003.1.2 of the International Fire Code.
- n. For storage and display quantities in Group M and storage quantities in Group S occupancies complying with Section 414.2.5, see Tables 414.2.5(1) and 414.2.5(2).
- o. Densely packed baled cotton that complies with the packing requirements of ISO 8115 shall not be included in this material class.
- p. The following shall not be included in determining the maximum allowable quantities:
 - 1. Liquid or gaseous fuel in fuel tanks on vehicles.
 - 2. Liquid or gaseous fuel in fuel tanks on motorized equipment operated in accordance with this code.
 - 3. Gaseous fuels in piping systems and fixed appliances regulated by the *International Fuel Gas Code*.
 - 4. Liquid fuels in piping systems and fixed appliances regulated by the International Mechanical Code.
- q. Where manufactured, generated or used in such a manner that the concentration and conditions create a fire or explosion hazard based on information prepared in accordance with Section 414.1.3.

5

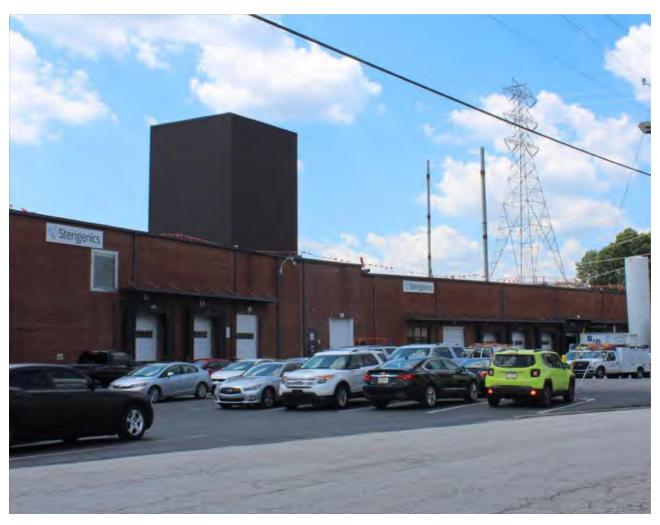
Exhibit 34

https://www.mdjonline.com/news/comply-or-stay-closed-cobb-forces-safety-upgrades-at-sterigenics/article_8fd52cdc-e075-11e9-be73-c7a164d2bb32.html

CENTERPIECE

Comply or stay closed: Cobb forces safety upgrades at Sterigenics plant

By Rosie Manins rmanins@mdjonline.com Sep 26, 2019



The Sterigenics plant in Cobb County.

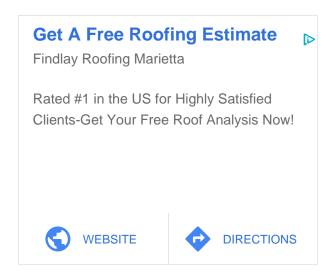
Rosie Manins

Cobb County is officially forcing Sterigenics to keep its Smyrna area facility closed until it can meet all current county and fire marshal requirements for buildings with industrial high hazard status.

It is not known how long that will take.

The medical sterilization facility, which uses a toxic gas to sterilize over a million devices every day, has been closed since the end of August while construction work to improve emissions is undertaken.

County lawyers had a conversation with Sterigenics staff about Cobb's decision to prevent the company's local operations until all safety requirements are met, and a formal notification was sent from the county to the global corporation, Cobb Commissioner Bob Ott told the MDJ.



"We'll not allow them to restart operations until the county is comfortable that they've met all the county code and fire marshal requirements," Ott said.

This comes while the medical sterilization plant off Atlanta Road is being investigated by Gov. Brian Kemp's office and is subject to increased scrutiny from the Georgia Environmental Protection Division.

There is widespread public concern the plant's emissions of the carcinogen ethylene oxide is damaging the health of those who live, work and go to school nearby.

Ott said Cobb staff spoke with Kemp's office to keep the governor informed and staff are also in constant communication with the Georgia EPD.

The independent testing of air around south Cobb, within several miles of the Sterigenics plant, will resume whenever the facility operations start up again, Ott said.

A week's worth of testing has already been done by GHD, a company commissioned by the Cobb County, Smyrna and Atlanta governments.



Bob Ott

Results showed a wide range of ethylene oxide concentrations and more data is needed to accurately identify the level of risk.

The Georgia EPD is also doing its own testing to determine what the base levels of ethylene oxide are in metro Atlanta and in rural Georgia, and how the levels around the Sterigenics plant compare.

The head of a nonprofit comprising thousands of people opposed to Sterigenics' operations in Cobb is pleased with the county's decision to force Sterigenics to comply with current safety protocols, having lobbied commissioners recently to address their concerns about the facility.

"Stop Sterigenics Georgia applauds the decision by the board to hold Sterigenics accountable to the 2012 International Building Code standards for a high hazard facility," group president Janet Rau told the MDJ after being informed of the county's latest action.

"After an extensive review of the submitted drawings by professionals within our team of volunteers and by external experts, we do not believe that this building in its location will be able to be modified sufficiently to meet those requirements," Rau said. "We will continue to keep a close eye on developments and provide information to the Cobb board and all other officials with the authority to positively impact this issue."

She added the group hopes county staff will be transparent in notifying the community about the status of its investigation into whether Sterigenics can meet all applicable standards and about the air testing in future.

Last week, a Sterigenics spokesman provided a statement to the MDJ about its change in occupancy status for its Cobb plant.

"We have been cooperating fully with local and state authorities throughout this process and will continue to do so," spokesman Bryan Locke said.

Sterigenics only just changed the way it lists its Cobb building's occupancy from "storage" to "industrial high hazard" in applying for an Aug. 15 county building permit to undertake the emissions improvement work being completed on site at present.

This change prompted the county to investigate whether the new status was warranted and if Sterigenics is in compliance with the associated safety protocols.

Ott told the MDJ it makes sense to force the company to upgrade its safety protocols in line with the industrial high hazard status while it is already shut down for the emissions system upgrades, rather than allow the company to resume operations and then shut them down again.

"Right now all the gas has been taken away and they don't have anything in storage," he said. "The construction is pretty much done."

County staff are currently determining exactly what the plant must achieve in order to be in compliance, and therefore it's not yet possible to estimate when the facility is likely to be able to reopen, Ott said.

The county is getting help from an outside consultant to ensure all requirements are met by the facility, and that may cause some delay. But at the same time Cobb is trying to expedite the process so the plant's shutdown doesn't put too much of a dent in the supply of much-needed sterile medical devices, Ott said.

Ethylene oxide is highly combustible and when combined with water it forms the main ingredient used in antifreeze.

It is one of the only effective ways to sterilize pre-packaged single-use medical devices like catheters and surgical kits and is used throughout the United States for this purpose.

Court action against Sterigenics is underway in Illinois, where a medical sterilization plant owned and operated by the company was temporarily shut down under a state order to reduce emissions, based on the health risk.

Legal proceedings between the state and the company were recently resolved, allowing Sterigenics to re-open its Illinois plant in Willowbrook under tighter emissions controls, but at least one lawsuit is still active on behalf of citizens who claim the company has caused cancer.

MORE INFORMATION											



Cobb investigates Sterigenics plant's change in occupancy status



FACTBOX: Air-Quality Oversight Committee



First results of independent air testing around Sterigenics revealed



• +5 First results pending	g of independent air testin	g around Cobb's Ster	igenics plant	

Comply or stay closed: Cobb forces safety upgrades at Sterigenics plant | News | mdjon... Page 10 of 21 Case 1:20-cv-01382-WMR Document 1-2 Filed 03/30/20 Page 76 of 342

○ +6
Realtors, school staff feel impact of Smyrna plant's toxic emissions
FACTBOX: Sterigenics and its use of ethylene oxide in Cobb County
Senator files lawsuit against state regarding Sterigenics' Cobb facility

Comply or stay closed: Cobb forces safety upgrades at Sterigenics plant | News | mdjon... Page 11 of 21 Case 1:20-cv-01382-WMR Document 1-2 Filed 03/30/20 Page 77 of 342

• +4				
Air monitors installed	d around Sterigenics plant	to test ethylene oxide	levels	

Comply or stay closed: Cobb forces safety upgrades at Sterigenics plant | News | mdjon... Page 12 of 21 Case 1:20-cv-01382-WMR Document 1-2 Filed 03/30/20 Page 78 of 342

6 +4			
	ed at Cobb Sterigenics plar	nt for five-month constru	uction project
	ed at Cobb Sterigenics plar	nt for five-month constru	uction project
	ed at Cobb Sterigenics plar	nt for five-month constru	uction project
	ed at Cobb Sterigenics plan	nt for five-month constru	uction project
	ed at Cobb Sterigenics plan	nt for five-month constru	uction project

Comply or stay closed: Cobb forces safety upgrades at Sterigenics plant | News | mdjon... Page 13 of 21 Case 1:20-cv-01382-WMR Document 1-2 Filed 03/30/20 Page 79 of 342

Another toxic leak ur	nder investigation at Ster	igenics' Cobb plant	
Another toxic leak ur	nder investigation at Ster	igenics' Cobb plant	
Another toxic leak ur	nder investigation at Ster	igenics' Cobb plant	
Another toxic leak ur	nder investigation at Ster	igenics' Cobb plant	
Another toxic leak ur	nder investigation at Ster	igenics' Cobb plant	
Another toxic leak ur	nder investigation at Ster	igenics' Cobb plant	
Another toxic leak ur	nder investigation at Ster	igenics' Cobb plant	
Another toxic leak ur	nder investigation at Ster	igenics' Cobb plant	
Another toxic leak ur	nder investigation at Ster	igenics' Cobb plant	
Another toxic leak ur	nder investigation at Ster	igenics' Cobb plant	
Another toxic leak ur	nder investigation at Ster	igenics' Cobb plant	

Comply or stay closed: Cobb forces safety upgrades at Sterigenics plant | News | mdjon... Page 14 of 21 Case 1:20-cv-01382-WMR Document 1-2 Filed 03/30/20 Page 80 of 342

♠ ±1			
Questions remain unanswere	d following Sterigenics work ses	sion	
	d following Sterigenics work ses	sion	
	d following Sterigenics work ses	sion	
	d following Sterigenics work ses	sion	
	d following Sterigenics work ses	sion	
	d following Sterigenics work ses	sion	
	d following Sterigenics work ses	sion	
	d following Sterigenics work ses	sion	
	d following Sterigenics work ses	sion	

Comply or stay closed: Cobb forces safety upgrades at Sterigenics plant | News | mdjon... Page 15 of 21 Case 1:20-cv-01382-WMR Document 1-2 Filed 03/30/20 Page 81 of 342

• +4 Sterigenics failed to t	imely report toxic leak fro	om Cobb facility, docum	nents show	
	imely report toxic leak fro	om Cobb facility, docum	nents show	
	imely report toxic leak fro	om Cobb facility, docum	nents show	
	imely report toxic leak fro	om Cobb facility, docum	nents show	
	imely report toxic leak fro	om Cobb facility, docum	nents show	

Comply or stay closed: Cobb forces safety upgrades at Sterigenics plant | News | mdjon... Page 16 of 21 Case 1:20-cv-01382-WMR Document 1-2 Filed 03/30/20 Page 82 of 342

○ +5				
'We hear you' -	– government agencies	try to reassure conce	rned residents over Sterig	genics issue
'We hear you' -	– government agencies	try to reassure conce	rned residents over Sterig	genics issue

Comply or stay closed: Cobb forces safety upgrades at Sterigenics plant | News | mdjon... Page 17 of 21 Case 1:20-cv-01382-WMR Document 1-2 Filed 03/30/20 Page 83 of 342

o +2			
	genics open house and c	community forum in Marie	etta

Comply or stay closed: Cobb forces safety upgrades at Sterigenics plant | News | mdjon... Page 18 of 21 Case 1:20-cv-01382-WMR Document 1-2 Filed 03/30/20 Page 84 of 342

1 +2
Sterigenics update due at public meeting

Comply or stay closed: Cobb forces safety upgrades at Sterigenics plant | News | mdjon... Page 19 of 21 Case 1:20-cv-01382-WMR Document 1-2 Filed 03/30/20 Page 85 of 342

Sterigenics threater	s legal action against Co	obb County	
Sterigenics threater	ns legal action against Co	obb County	
Sterigenics threater	ns legal action against Co	obb County	
Sterigenics threater	ns legal action against Co	obb County	
Sterigenics threater	ns legal action against Co	obb County	
Sterigenics threater	ns legal action against Co	obb County	
Sterigenics threater	ns legal action against Co	obb County	
Sterigenics threater	ns legal action against Co	obb County	
Sterigenics threater	ns legal action against Co	obb County	
Sterigenics threater	ns legal action against Co	obb County	
Sterigenics threater	ns legal action against Co	obb County	

Comply or stay closed: Cobb forces safety upgrades at Sterigenics plant | News | mdjon... Page 20 of 21 Case 1:20-cv-01382-WMR Document 1-2 Filed 03/30/20 Page 86 of 342



Exhibit 35



COBB COUNTY ATTORNEY'S OFFICE

100 Cherokee Street, Suite 350 Marietta, Georgia 30090-7003 Phone: (770) 528-4000 • Fax: (770)528-4010 H. William Rowling, Jr. County Attorney

October 1, 2019

VIA Hand Delivery

Dan Diffley Clay Massey Alston & Bird One Atlantic Center 1201 West Peachtree Street Suite 4900 Atlanta, GA 30309-3424

RE: Continued Suspension of Sterilization Services & Requirement for New Certificate of Occupancy

Dear Mr. Diffley and Mr. Massey,

Thank you for speaking with us on Friday, and for confirming that Sterigenics is not currently engaged in sterilization services at its Cobb County facility.

During our conversation, you asked that we verify whether your client is permitted to continue its construction activities in order to upgrade exhaust and scrubbing systems, as requested by the EPD. In discussing with our clients, we have confirmed that the applicable construction permit (2019-007189) remains on hold. While the remodel permit was initially issued on August 15, 2019, your client was notified that deferred submittals and special inspection contingencies were required. To further explain the contingencies, a September 3, 2019 meeting was held at Fire Headquarters with County personnel, Sterigenics representatives, and Pond & Company. As a result of the meeting, Pond & Company provided the requested deferred submittals and revised plans on September 11, 2019. Those plans, and any related construction, have not yet been approved.

In the interim, the County Fire Marshal and the Chief Building Official have determined that, based upon the sterilization operations occurring on site, Sterigenics' Cobb County facility falls within a "High Hazard" occupancy classification; yet, Sterigenics currently maintains a Certificate of Occupancy for only "Storage." For this reason, and because of the substantial renovations occurring on the premises, Sterigenics must acquire a new Certificate of Occupancy to operate.

Case 1:20-cv-01382-WMR Document 1-2 Filed 03/30/20 Page 90 of 342

Dan Diffley Clay Massey October 1, 2019 Page 2 of 2

Due to the complexity of the revisions and the nature of hazardous activity that will be occurring, the County will secure review by a third-party technical expert. The County will provide your client with a list of several qualified technical experts and allow selection of one. Pursuant to safety standards adopted in Georgia, the submitting party bears the cost of the technical assistance. Until review by the selected technical expert and County officials is complete, Sterigenics is <u>not</u> permitted to engage in construction or sterilization operations at its Cobb County facility.

In summation, the County is exercising its regulatory and public safety diligence based upon the revised construction plans and the High Hazard occupancy. As we know your client appreciates, this critical regulatory review cannot be rushed or haphazardly conducted. In deference to public safety and the best interests of Cobb County residents, we will take the necessary steps to ensure compliance with various, highly-technical building and fire codes.

Sincerely,

Brian Johnson

Senior Associate County Attorney

cc: Nick Dawe, Fire Marshal

Kevin Gobble, Chief Building Official

Exhibit 36

Randy Crider Fire Chief

Jay Westbrook Deputy Fire Chief

1595 County Services Pkwy. Marietta, GA 30008-4021 www.cobbfmo.org



Cobb County Fire & Emergency Services

Nicholas Dawe Fire Marshal

 $fmoin spections@cobb county.org\\phone: (770) 528-8310 \bullet fax: (770) 528-8320$

October 11, 2019 Via US Mail & Email

Clay Massey
Alston & Bird
One Atlantic Center
1201 West Peachtree Street, Suite 4900
Atlanta, GA 30309-3424
Clay.Massey@alston.com

RE: Requirement for New Certificate of Occupancy

Dear Mr. Massey,

A letter was sent to Jeffrey William Meier with Pond Constructors, Inc. today, revoking Permit 2019-0007189 and failing any related submittals. (*See* Attached). As you were notified on October 1, 2019, and as reiterated in the attached correspondence, Sterigenics <u>must</u> obtain a new accurate Certificate of Occupancy.

For the County to begin processing a new C.O., Sterigenics needs to provide the following documents and information to Cobb County Fire Marshal's Office:

- A new commercial permit application requesting an accurate C.O.;
- A complete set of stamped plans for the <u>entire</u> tenant space occupied by Sterigenics at 2971 Olympic Industrial Drive, Suite 116 (approximately 70,000 sq/ft)¹;
- A stamped letter from an architect or engineer providing an expert opinion as to the facility's occupancy classification per NFPA 101, and its hazard designation per IFC and IBC;
- A stamped letter from an architect or engineer identifying the inventory of hazardous materials at Sterigenics' facility, including locations, container sizes, amounts in storage, amounts in an open system, amounts in closed system, and how the materials are stored and secured;
- A stamped letter from an architect or engineer identifying the maximum allowable on-site quantities per all applicable safety standards in Georgia (including any internal and external storage areas at the facility); and,
- "Statement of Special Inspections" and "Schedule of Special Inspections" forms (Attached hereto).

¹ As reflected in Sterigenics and County records, the address(es) of the tenant space(s) occupied by Sterigenics have changed numerous times over the past several decades, causing confusion (*e.g.*, at one time, Sterigenics occupied both "2971 Olympic Industrial Drive, Suite D" and "2973 Olympic Industrial Drive"). The current address for the consolidated tenant space occupied by Sterigenics is "2971 Olympic Industrial Drive, Suite 116." There is no holistic C.O. for this consolidated tenant space.

Once the above information is provided, the County will submit the information to an independent third-party technical expert. To expedite the review process, Sterigenics should strive to ensure the submitted materials are all-inclusive and holistic.

By securing an up-to-date C.O., Sterigenics and Cobb County will be able to move forward cooperatively knowing that all currently-adopted safety standards (enforced at the local level) have been satisfied. We look forward to continuing to work with your client to mutually achieve this goal, in keeping with our pursuit of public safety.

Nick Dawe Fire Marshal

Kevin Gobble

Chief Building Official

Case 1:20-cv-01382-WMR Document 1-2 Filed 03/30/20 Page 94 of 342



COBB COUNTY

COMMUNITY DEVELOPMENT AGENCY

_ Kevin Gobble, CBO

P.O. Box 649 Marietta, GA 30061-0649 Phone: (770) 528-2189 Development & Inspections Division Manager

October 11, 2019 Via US Mail and Email

Jeffrey William Meier Pond Constructors Inc. 3500 Parkway Ln., Suite #600 Norcross, GA 30092 williammeierj@pondco.com

Re:

Permit 2019-007189 & Amended Plans

Mr. Meier,

On August 15, 2019, Cobb County approved and issued you a "remodel" building permit (Permit 2019-007189). The permit was issued contingent upon certain deferred submittals (*i.e.*, construction plans for subsequent fire protection and mechanical systems). Prior to submission of all necessary deferred submittals, Pond & Company provided amended plans via email on September 11, 2019. The amended plans made substantial changes to Pond & Company's previously-submitted designs. The September 11, 2019 email submittal, and full-size plans delivered on October 7, 2019, have not been fully reviewed or approved by the County. Therefore, Sterigenics was never granted permission to engage in construction activities pursuant to the amended plans.

In accordance with Cobb County Code, Sec. 18-121, and IBC 105.6, I am hereby notifying you in writing that, effective immediately, Permit 2019-007189 is **revoked**, and any amended submittals related to the permit are **failed**, for the following reasons:

- The construction work performed onsite does not match the initial submittal and only approved remodel plan;
- Work has been performed that was not subject to a proper permit, which is a violation of our County ordinance;
- The permit was issued subject to incorrect, inaccurate and incomplete information, including but not limited to square footages that appear not to have ever been permitted;
- The revision to the initial remodel permit was never correctly permitted and payment was never received;
- There is no current, accurate, cumulative Certificate of Occupancy for the premises;
- Sterigenics is not eligible for any permitting process other than applying for a new accurate Certificate of Occupancy.

Case 1:20-cv-01382-WMR Document 1-2 Filed 03/30/20 Page 95 of 342





COMMUNITY DEVELOPMENT AGENCY

Kevin Gobble, CBO

Marietta, GA 30061-0649 Phone: (770) 528-2189

Development & Inspections Division Manager

A new Certificate of Occupancy will, at a minimum, need to (1) encompass the actual square footage occupied by Sterigenics; (2) denote a current address of 2971 Olympic Industrial Drive, Suite 116, Smyrna, Georgia; and (3) provide an accurate occupancy classification per NFPA 101 and the International Building Code.

Finally, any work that has been completed remains subject to review, inspection, and approval.

Thank you,

Kevin Gobble

Chief Building Official

All applicable items must be completed before submittal to the Fire Marshal's Office. See page 2 for minimum plan requirements. INCORRECT, INVALID, OR INCOMPLETE INFORMATION MAY RESULT IN A STOP WORK ORDER AND ADDITIONAL FINES

****Put date next to appropriate job type**** Site Shell New	Bldg	New Tenant	Add (Int / N	New) Remodel	
Other					
New Bldg. Outside Dimensions					
Arch/Designer		Phone	ė		
Person Responsible for Plans					
Job Site Contact					
Project Address				Suite	
Job / Tenant Name					
City(City Limits 🛛	l Acworth 🛚 Kenn	esaw 🗆 Powo	ler Springs Zip	
Complex Name	,				
Property Owner's Name				Phone	
Address	City		State2		
General Contractor					
Address					
Building # Stories in Br	uilding	Number of Build	ings	Basement Yes No	
Construction Cost \$	Occup	oancy Type per NFPA	101	O/Load per NFPA 101	
New Bldg. Sq. Ft New	w Tenant Sq. F	tAddi	tion Sq. Ft	Remodel Sq. Ft	
Construction Type per Building Cod Space Completely Sprinklered: Building Completely Sprinklered:	Yes 🗖 No Ty Yes 🗖 No Ty	ypeReq. by Co	Code 🗆 Yes 🗀 1	No(List code section)	
Supervised System Yes No R Other fire protection system(s) Please check if building/job will ha	ave any of the	LSC Y	/ear k performed:	(List code section)	
Electrical	_		-		
Fire Sprinklers Yes No					
Signature		Print		Date	
Title/Relation					
**** Offici	ial Use Only	- DO NOT WRIT	E BELOW TH	IIS LINE ****	
Building Department Comments	Control of the Contro				
Reviewed By:				Date	
Fire Comments					
Reviewed By:				Date	
	FMO Bldg.				
Certificate of Occupancy Require	ed 🗆 🔾		on Only, O.C.G.	A. 25-2-13:	
Letter of Completion Required Special Inspections Required			PERM	AIT#	

Cobb County Water System (CCWS) (770) 419-6327 and Health Department Requirements

1. Submit completed Commercial Permit Application to CCWSPlanReview@cobbcounty.org so that CCWS may determine if plan approval and water and sewer fees are required for the project. CCWS may request additional information in order to make a final determination. CCWS will mark the requirements on line A below and return the application. Allow five business days for CCWS to process. If required, plans must be approved and fees must be paid prior to submitting plans for structural plan review.

Health Department (770-435-7815) approval is required for septic systems, public swimming pools, restaurants/cafeterias, catering, bars, personal care homes, hotels/motels, body art businesses, etc. Go to www.CobbAndDouglasPublicHealth.com for more information. Water System Use Only A. Plan Approval Required: ☐ Yes ☐ No Fees Due: ☐ Yes ☐ No Signed: _______ Date: ____ B. Plans Approved On _____ Fees Paid On _____ Signed: _____ Date: ____ 3. Fire Marshal's Office Requirements Visit www.CobbFMO.org to schedule a plan review appointment The Required Plan Review Information Needed In the Fire Marshal Plan Review Appointment: 1. Minimum of (4) sets of plans which contains: Pass / Fail **Minimum Required Information Minimum Required Information** Show a top view of the tenant location inside the building Job Name & Project Address on the plans Show all door, window and wall locations & Furniture Layout, Overall area of the space shown – It must be scaled or show dimensions of each room merchandise, shelving/fixtures for the tenant space Identify and label each room on the drawings Show all exit sign, emergency light & fire extinguisher locations Scope of work letter (Explain the construction, if any, being done Key Plan (Show the proximity of the space in conjunction with building and/or property) with your permit) Cash or Check to pay for the plan review, make checks payable Complete egress route to outside the building (Show to: Cobb County Fire and Emergency Services how to access two exits) 2. One complete set of plans on CD in PDF Format 3. Complete permit application (this *form*) before the start of your appointment; both sides. 4. Line A above must be completed and signed by Water System prior to appointment NOTE: PLANS SUBJECT TO REJECTION IF INFORMATION NOT SUFFICENT TO DETERMINE CODE COMPLIANCE Building Department Requirements Structural Plan Review Office (770) 528-2071 4. Plans must be approved by Fire Marshal prior to submittal for structural plan review. Review procedures are as follows: Renovations are reviewed as time permits; freestanding buildings & additions are required to be dropped off for review. Review time varies depending upon the complexity of the plans. Any plans stating "Not Released for Construction" or similar are not acceptable. If required, Water System plan approval must be obtained and fees must be paid prior to plan submittal for structural plan review. Zoning approval may be required (770-528-2035). In addition to the above requirements, the following steps are mandatory before issuance of a Permit for a freestanding building or addition. (Energy Affidavit, Temporary Pole, and Temporary Power forms must accompany this application). ☐ Land Disturbance Permit issued by Site Plan Review. (770-528-2147)LDP #: Address Verification issued by Cobb County GIS. (770-528-2002)☐ Grading Permit (On site Erosion Control Approval) issued by Site Inspections. (770-528-2142)Grading #: ☐ Architectural Design Worksheet completed. _____ Actual: Required: Statement and Schedule of Special Inspections. (See www.seaog.org for forms and example.) ☐ Health Department Approval. (770- 435-7815)

Zoning Department Use Only

Approved by: Date:

☐ 1 Complete Set of Plans on separate CD in PDF Format

☐ State Contractor License: Type

☐ Erosion Control Certification (See gaswcc.georgia.gov) #:

☐ Georgia Business License #:

	SCHEDULE OF SPEC	IAL II	NSPECTION SER	VICES	
PROJECT	001120022 01 01 20	.,			
		<u> </u>	APPLICABLE		
MATERIAL / ACTIVITY	SERVICE	Y/N	EXTENT	AGENT*	DATE COMPLETED
1704.2.5 Inspection of Fabricators					
Verify fabrication/quality control	In-plant review (3)		Periodic		
procedures	III-plant review (3)	<u> </u>	1 enouic		
1705.1.1 Special Cases (work unusual in nature, including but not limited to alternative materials and systems, unusual design applications, materials and systems with special manufacturer's requirements)	Submittal review, shop (3) and/or field inspection				`
1705.2 Steel Construction					
Fabricator and erector documents (Verify reports and certificates as listed in AISC 360, chapter N, paragraph 3.2 for compliance with construction documents)	Submittal Review		Each submittal		
Material verification of structural steel	Shop (3) and field inspection		Periodic		
3. Embedments (Verify diameter, grade, type, length, embedment. See 1705.3 for anchors)	Field inspection		Periodic		
Verify member locations, braces, stiffeners, and application of joint details at each connection comply with construction documents	Field inspection		Periodic		
5. Structural steel welding:				,	
Inspection tasks Prior to Welding (Observe, or perform for each welded joint or member, the QA tasks listed in AISC 360, Table N5.4-1)	Shop (3) and field inspection		Observe or Perform as noted (4)		
b. Inspection tasks During Welding (Observe, or perform for each welded joint or member, the QA tasks listed in AISC 360, Table N5.4-2)	Shop (3) and field inspection		Observe (4)		
c. Inspection tasks After Welding (Observe, or perform for each welded joint or member, the QA tasks listed in AISC 360, Table N5.4-3)	Shop (3) and field inspection		Observe or Perform as noted (4)		
d. Nondestructive testing (NDT) of welded joints: see Commentary					
Complete penetration groove welds 5/16" or greater in risk category III or IV	Shop (3) or field ultrasonic testing - 100%		Periodic		
Complete penetration groove welds 5/16" or greater in risk category II	Shop (3) or field ultrasonic testing - 10% of welds minimum		Periodic		
Thermally cut surfaces of access holes when material t > 2"	Shop (3) or field magnetic Partical or Penetrant testing		Periodic		
4) Welded joints subject to fatigue when required by AISC 360, Appendix 3, Table A-3.1	Shop (3) or field radiographic or Ultrasonic testing		Periodic		
 Fabricator's NDT reports when fabricator performs NDT 	Verify reports	L	Each submittal (5)		
Structural steel bolting:	Shop (3) and field inspection				
Inspection tasks Prior to Bolting (Observe, or perform tasks for each bolted connection, in accordance with QA tasks listed in AISC 360, Table N5.6-1)			Observe or Perform as noted (4)		

ACEC/SEAOG SI GL 01 - 12

SCHEDULE OF SPECIAL INSPECTION SERVICES								
PROJECT								
PROJECT		T	APPLICABLE	TO THIS P	ROJECT			
MATERIAL / ACTIVITY	SERVICE	Y/N	EXTENT	AGENT*	DATE COMPLETED			
b.Inspection tasks During Bolting (Observe the QA tasks listed in AISC 360, Table N5.6-2)			Observe (4)					
Pre-tensioned and slip-critical joints								
a) Turn-of-nut with matching markings			Periodic					
b) Direct tension indicator			Periodic					
 c) Twist-off type tension control bolt 			Periodic					
 d) Turn-of-nut without matching markings 			Continuous					
e) Calibrated wrench			Continuous					
2) Snug-tight joints			Periodic					
c. Inspection tasks After Bolting (Perform tasks for each bolted connection in accordance with QA tasks listed in AISC 360, Table N5.6-3)			Perform (4)					
7. Inspection of steel elements of composite construction prior to concrete placement in accordance with QA tasks listed in AISC 360, Table N6.1	Shop (3) and field inspection and testing		Observe or Perform as noted (4)					
1705.2.2 Steel Construction Other Than Structural Steel								
Material verification of cold-formed steel deck:								
a. Identification markings	Field inspection		Periodic					
b. Manufacturer's certified test	Submittal Review		Each submittal					
reports 2. Connection of cold-formed steel deck to supporting structure:	Shop (3) and field inspection							
a. Welding			Periodic					
b. Other fasteners (in accordance with AISC 360,Section N6)								
Verify fasteners are in conformance with approved submittal			Periodic					
Verify fastener installation is in conformance with approved submittal and manufacturer's recommendations			Periodic					
Reinforcing steel	Shop (3) and field inspection							
a. Verification of weldability of steel other than ASTM A706			Periodic					
 Beinforcing steel resisting flexural and axial forces in intermediate and special moment frames, boundary elements of special concrete structural walls and shear 			Continuous					
reinforcement c. Shear reinforcement		 	Continuous					
d. Other reinforcing steel		—	Periodic					
Cold-formed steel trusses spanning feet or greater	1							
Nerify temporary and permanent restraint/bracing are installed in accordance with the approved truss submittal package	Field inspection		Periodic					
1705.3 Concrete Construction		ļ						
Inspection of reinforcing steel installation (see 1705.2.2 for welding)	Shop (3) and field inspection		Periodic					
Inspection of prestressing steel installation	Shop (3) and field inspection		Periodic					

SCHEDULE OF SPECIAL INSPECTION SERVICES							
PROJECT							
MATERIAL / ACTIVITY	SERVICE	Y/N	APPLICABLE EXTENT	TO THIS PI	ROJECT DATE COMPLETED		
Inspection of anchors cast in concrete where allowable loads have been increased per section 1908.5 or where strength design is used	Shop (3) and field inspection		Periodic		5/N 2 0 mm 22 125		
4. Inspection of anchors and reinforcing steel post-installed in hardened concrete: Per research reports including verification of anchor type, anchor dimensions, hole dimensions, hole cleaning procedures, anchor spacing, edge distances, concrete minimum thickness, anchor embedment and tightening torque	Field inspection		Periodic or as required by the research report issued by an approved source				
5. Verify use of approved design mix	Shop (3) and field inspection		Periodic				
Fresh concrete sampling, perform slump and air content tests and determine temperature of concrete	Shop (3) and field inspection		Continuous				
7. Inspection of concrete and shotcrete placement for proper application techniques	Shop (3) and field inspection		Continuous				
Inspection for maintenance of specified curing temperature and techniques	Shop (3) and field inspection		Periodic				
9. Inspection of prestressed concrete:	Shop (3) and field inspection						
a. Application of prestressing force			Continuous				
b. Grouting of bonded prestressing tendons in the seismic-force-resisting system			Continuous				
10. Erection of precast concrete members							
a. Inspect in accordance with construction documents	Field inspection		In accordance with construction documents				
b. Perform inspections of welding and bolting in accordance with Section 1705.2	Field inspection		In accordance with Section 1705.2				
11. Verification of in-situ concrete strength, prior to stressing of tendons in post tensioned concrete and prior to removal of shores and forms from beams and structural slabs	Review field testing and laboratory reports		Periodic				
12. Inspection of formwork for shape, lines, location and dimensions	Field inspection		Periodic				
Concrete strength testing and verification of compliance with construction documents	Field testing and review of laboratory reports		Periodic				
1705.4 Masonry Construction							
(A) Level A, B and C Quality Assurance:					,		
Verify compliance with approved submittals	Field Inspection		Periodic				
(B) Level B Quality Assurance:							
Verification of f'm and f'AAC prior to construction	Testing by unit strength method or prism test method		Periodic				

PROJECT	SCHEDULE OF SPEC				
PROJECT		ı	APPLICABLE	TO THIS P	ROJECT
MATERIAL / ACTIVITY	SERVICE	Y/N	EXTENT	AGENT*	DATE COMPLETED
(C) Level C Quality Assurance:					
Verification of fm and f _{AAC} prior to construction and for every 5,000 SF during construction	Testing by unit strength method or prism test method		Periodic		
Verification of proportions of materials in premixed or preblended mortar, prestressing grout, and grout other than self- consolidating grout, as delivered to the project site	Field inspection		Continuous		
Verify placement of masonry units	Field Inspection		Periodic		
(D) Levels B and C Quality Assurance:					
Verification of Slump Flow and Visual Stability Index (VSI) of self- consolidating grout as delivered to the project	Field testing		Continuous		
Verify compliance with approved submittals	Field inspection		Periodic		
Verify proportions of site-mixed mortar, grout and prestressing grout for bonded tendons	Field Inspection		Periodic		
Verify grade, type, and size of reinforcement and anchor bolts, and prestressing tendons and anchorages	Field Inspection		Periodic		
Verify construction of mortar joints	Field Inspection		Periodic		
Verify placement of reinforcement, connectors, and prestressing tendons and anchorages	Field Inspection		Level B - Periodic		
			Level C - Continuous		
7. Verify grout space prior to	Field Inspection		Level B - Periodic		
grouting 8. Verify placement of grout and prestressing grout for bonded tendons	Field Inspection	***************************************	Level C - Continuous Continuous		
Verify size and location of structural masonry elements	Field Inspection		Periodic		
10. Verify type, size, and location of anchors, including details of anchorage of masonry to structural members, frames, or other construction.	Field inspection		Level B - Periodic		
			Level C - Continuous		
11. Verify welding of reinforcement (see 1705.2.2)	Field inspection		Continuous		
12. Verify preparation, construction, and protestion of masonry during cold weather (temperature below 40°F) or hot weather (temperature above 90°F)	Field inspection		Periodic		
13. Verify application and measurement of prestressing force	Field Inspection		Continuous		

	SCHEDULE OF SPE	CIAL IN	NSPECTION SEE	RVICES	
PROJECT	001120022 01 07 2	<u> </u>			
			APPLICABLE	TO THIS PI	ROJECT
MATERIAL / ACTIVITY	SERVICE	Y/N	EXTENT	AGENT*	DATE COMPLETED
14. Verify placement of AAC masonry units and construction of thin-bed mortar joints (first 5000 SF of AAC masonry)	Field inspection		Continuous		
15. Verify placement of AAC masonry units and construction of thin-bed mortar joints (after the first 5000 SF of AAC masonry)	Field inspection		Level B - Periodic		
			Level C - Continuous		
16. Verify properties of thin-bed mortar for AAC masonry (first 5000 SF of AAC masonry)	Field inspection		Continuous		
17. Verify properties of thin-bed mortar forAAC masonry (after the first 5000 SF of AAC masonry)	Field inspection		Level B - Periodic		
			Level C - Continuous		
18. Prepare grout and mortar	Field testing	1	Level B - Periodic		
specimens	ű		Level C - Continuous		
19. Observe preparation of prisms	Field inspection		Level B - Periodic		
			Level C - Continuous		
1705.5 Wood Construction					
Inspection of the fabrication process of wood structural elements and assemblies in accordance with Section 1704.2.5	In-plant review (3)		Periodic		
For high-load diaphragms, verify grade and thickness of structural panel sheathing agree with approved building plans	Field inspection		Periodic		
3. For high-load diaphragms, verify nominal size of framing members at adjoining panel edges, nail or staple diameter and length, number of fastener lines, and that spacing between fasteners in each line and at edge margins agree with approved building plans	Field inspection		Periodic		
Metal-plate-connected wood trusses spanning 60 feet or greater: verify temporary and permanent restraint/bracing are installed in accordance with the approved truss submittal package	Field inspection		Periodic		
1705.6 Soils		1			
Verify materials below shallow foundations are adequate to achieve the design bearing capacity.	Field inspection		Periodic		
Verify excavations are extended to proper depth and have reached proper material.	Field inspection		Periodic		
Perform classification and testing of controlled fill materials.	Field inspection		Periodic		
Verify use of proper materials, densities, and lift thicknesses during placement and compaction of controlled fill	Field inspection		Continuous		
5. Prior to placement of controlled fill, observe subgrade and verify that site has been prepared properly	Field inspection		Periodic		

	SCHEDULE OF SPEC	IAL IN	SPECTION SEF	RVICES				
PROJECT								
		APPLICABLE TO THIS PROJECT Y/N EXTENT AGENT* DATE COMPL						
MATERIAL / ACTIVITY	SERVICE	Y/N	EXTENT	AGENT*	DATE COMPLETED			
1705.7 Driven Deep Foundations								
Verify element materials, sizes and lengths comply with requirements	Field inspection		Continuous					
Determine capacities of test elements and conduct additional load tests, as required	Field inspection		Continuous					
Observe driving operations and maintain complete and accurate records for each element	Field inspection		Continuous					
4. Verify placement locations and plumbness, confirm type and size of hammer, record number of blows per foot of penetration, determine required penetrations to achieve design capacity, record tip and butt elevations and document any damage to foundation element	Field inspection		Continuous					
5. For steel elements, perform additional inspections per Section 1705.2	See Section 1705.2		See Section 1705.2					
6. For concrete elements and concrete- filled elements, perform additional inspections per Section 1705.3	See Section 1705.3		See Section 1705,3					
7. For specialty elements, perform additional inspections as determined by the registered design professional in responsible charge	Field inspection		In accordance with construction documents					
Perform additional inspections and tests in accordance with the construction documents	Field Inspection and testing		In accordance with construction documents					
1705.8 Cast-in-Place Deep	,							
Foundations 1.Observe drilling operations and maintain complete and accurate records for each element	Field inspection		Continuous					
Verify placement locations and plumbness, confirm element diameters, bell diameters (if applicable), lengths, embedment into bedrock (if applicable) and adequate end-bearing strata capacity. Record concrete or grout volumes	Field inspection		Continuous					
For concrete elements, perform additional inspections in accordance with Section 1705.3	See Section 1705.3		See Section 1705.3					
Perform additional inspections and tests in accordance with the construction documents	Field Inspection and testing		In accordance with construction documents					
1705.9 Helical Pile Foundations								
Verify installation equipment, pile dimensions, tip elevations, final depth, final installation torque and other data as required.	Field inspection		Continuous					
Perform additional inspections and tests in accordance with the construction documents	Field Inspection and testing		In accordance with construction documents					

	SCHEDULE OF SPEC	IAL IN	SPECTION SEI	RVICES	
PROJECT					
			APPLICABLE		
MATERIAL / ACTIVITY	SERVICE	Y/N	EXTENT	AGENT*	DATE COMPLETED
1705.10.1 Structural Wood Special Inspections For Wind Resistance					
Inspection of field gluing operations of elements of the main windforce-resisting system	Field inspection		Continuous		
Inspection of nailing, bolting, anchoring and other fastening of components within the main windforce- resisting system	Shop (3) and field inspection		Periodic		
1705,10.2 Cold-formed Steel Special Inspections For Wind Resistance					
Inspection during welding operations of elements of the main windforce-resisting system	Shop (3) and field inspection		Periodic		
Inspections for screw attachment, botting, anchoring and other fastening of components within the main windforce-resisting system	Shop (3) and field inspection		Periodic		
1705.10.3 Wind-resisting					
Components 1. Roof cladding	Shop (3) and field inspection	-	Periodic	 	
2. Wall cladding	Shop (3) and field inspection		Periodic		
1705.11.1 Structural Steel Special Inspections for Seismic Resistance					
Inspection of structural steel in accordance with AISC 341 1705.11.2 Structural Wood	Shop (3) and field inspection		In accordance with AISC 341		
Special Inspections for Seismic					
Resistance					
Inspection of field gluing operations of elements of the seismic-force resisting system	Field inspection		Continuous		
Inspection of nailing, bolting, anchoring and other fastening of components within the seismic-force- resisting system	Shop (3) and field inspection		Periodic		
1705.11.3 Cold-formed Steel Light-Frame Construction Special Inspections for Seismic Resistance					
Inspection during welding operations of elements of the seismic-force- resisting system	Shop (3) and field inspection		Periodic		
Inspections for screw attachment, bolting, anchoring and other fastening of components within the seismic-force- resisting system	Shop (3) and field inspection		Periodic		
1705.11.4 Designated Seismic Systems Verification					
Inspect and verify that that the component label, anchorage or mounting conforms to the certificate of compliance in accordance with Section 1705.12.3	Field inspection		Periodic		

	SCHEDULE OF SPEC	IAL II	ISPECTION SEI	RVICES	
PROJECT		T	AMPILO APT	* TO THE -	DOLLOX
MATERIAL / ACTIVITY	CEDVICE	V/N	APPLICABLE EXTENT	E TO THIS P	ROJECT DATE COMPLETED
MATERIAL / ACTIVITY	SERVICE	Y/N	EXIENT	AGENT	DATE COMPLETED
1705.11.5 Architectural Components Special Inspections for Seismic Resistance					
Inspection during the erection and fastening of exterior cladding and interior and exterior veneer	Field inspection		Periodic		
Inspection during the erection and fastening of interior and exterior nonbearing walls	Field inspection		Periodic		
Inspection during anchorage of access floors	Field inspection		Periodic		
1705.11.6 Mechanical and Electrical Components Special Inspections for Seismic Resistance					
Inspection during the anchorage of electrical equipment for emergency or standby power systems	Field inspection		Periodic		
Inspection during the anchorage of other electrical equipment	Field inspection		Periodic		
Inspection during installation and anchorage of piping systems designed to carry hazardous materials, and their associated mechanical units	Field inspection		Periodic		
Inspection during the installation and anchorage of HVAC ductwork that will contain hazardous materials	Field inspection		Periodic		
5. Inspection during the installation and anchorage of vibration isolation systems	Field inspection		Periodic		
1705.11.7 Storage Racks Special Inspections for Seismic Resistance					
Inspection during the anchorage of storage racks 8 feet or greater in height	Field inspection		Periodic		
1705.11.8 Seismic Isolation Systems					
Inspection during the fabrication and installation of isolator units and energy dissipation devices used as part of the seismic isolation system	Shop and field inspection		Periodic		
1705.12.1 Concrete Reinforcement Testing and Qualification for Seismic Resistance					
Review certified mill test reports for each shipment of reinforcement used to resist earthquake-induced flexural and axial forces in reinforced concrete special moment frames, special structural walls, and coupling beams connecting special structural walls	Review certified mill test reports		Each shipment		

ACEC/SEAOG SI GL 01 - 12

	SCHEDULE OF SPEC	IAL IN	ISPECTION SE	RVICES	
PROJECT					
			APPLICABLI		
MATERIAL / ACTIVITY	SERVICE	Y/N	EXTENT	AGENT*	DATE COMPLETED
Verify reinforcement weldability of ASTM A615 reinforcement used to resist earthquake-induced flexural and axial forces in reinforced concrete special moment frames, special structural walls, and coupling beams connecting special structural walls	Review test reports		Each shipment		
1705.12.2 Structural Steel Testing and Qualification for Seismic Resistance					
Test in accordance with the quality assurance requirements of AISC 341	Shop (3) and field testing		Per AISC 341		
1705.12.3 Seismic Certification of Nonstructural Components				:	
Review certificate of compliance for designated seismic system components.	Certificate of compliance review		Each submittal		
1705.12.4 Seismic Isolation Systems					
Test seismic isolation system in accordance with ASCE 7 Section 17.8	Prototype testing		Per ASCE 7		
1705.13 Sprayed Fire-resistant Materials					
Verify surface condition preparation of structural members	Field inspection		Periodic		
Verify application of sprayed fire- resistant materials	Field inspection		Periodic		
Verify average thickness of sprayed fire-resistant materials applied to structural members	Field inspection		Periodic		
Verify density of the sprayed fire- resistant material complies with approved fire-resistant design	Field inspection and testing		Per IBC Section 1705.13.5		
5. Verify the cohesive/adhesive bond strength of the cured sprayed fire- resistant material	Field inspection and testing		Per IBC Section 1705.13.6		
1705.14 Mastic and Intumescent Fire-Resistant Coatings				0.0000000000000000000000000000000000000	
Inspect mastic and intumescent fire- resistant coatings applied to structural elements and decks	Field inspection		Periodic		
1705.15 Exterior Insulation and Finish Systems (EIFS)					
Verify materials, details and installations are per the approved construction documents	Field inspection		Periodic		
Inspection of water-resistive barrier over sheathing substrate	Field inspection		Periodic		

SC	CHEDULE OF SPEC	CIAL IN	ISPECTION SER	RVICE	S								
PROJECT													
			APPLICABLE TO THIS PROJECT						APPLICABLE TO THIS PROJECT				
MATERIAL / ACTIVITY	SERVICE	Y/N	EXTENT	AGE	NT*	DATE COMPLETED							
1705.16 Fire-Resistant													
Penetrations and Joints													
Inspect penetration firestop systems	Field testing		Per ASTM E2174										
2. Inspect fire-resistant joint systems	Field testing		Per ASTM E2393	 									
1705.17 Smoke Control Systems													
Leakage testing and recording of device locations prior to concealment	Field testing		Periodic										
Prior to occupancy and after sufficient completion, pressure difference testing, flow measurements, and detection and control verification	Field testing		Periodic										
* INSPECTION AGENTS FIRM 1.		<u></u>	ADDRESS			TELEPHONE NO.							
2.													
3.		·····											
4. Notes: 1. The inspection and testing agent(s) shall be tested. Any conflict of interest must be disc testing agencies may be subject to the appr 2. The list of Special Inspectors may be submit 3. Special Insepctions as required by Section 4. Observe on a random basis, operations nee 5. NDT of welds completed in an approved tab	losed to the Building Official prior to roval of the Building Official and/or tled as a separate document, if not 1704.2.5 are not required where the ad not be delayed pending these in	o commenc the Design ted so abov e fabricator spections. I	ing work. The qualifications o Professional. e. is approved in accordance v Perform these tasks for each	of the Spec vith IBC So welded jo	cial Inspec ection 170 int, bolted	ctor(s) and/or 04.2.5.2 I connection, or steel element.							
Are Requirements for Seismic Resistance inclu Are Requirements for Wind Resistance includer				Yes Yes	No No								
•			DATE:										

ACEC/SEAOG SI GL 01 - 12

STATEMENT OF SPECIAL INSPECTIONS

PROJECT:							
LOCATION:							
PERMIT APPLICANT:							
APPLICANT'S ADDRES							
ARCHITECT OF RECOR	D:				· · · · · · · · · · · · · · · · · · ·		
STRUCTURAL ENGINEE	R OF RECORD: _						
MECHANICAL ENGINEE	R OF RECORD: _						
ELECTRICAL ENGINEE	R OF RECORD:					***************************************	
REGISTERED DESIGN F	PROFESSIONAL IN	I RESPONS	IBLE CH	ARGE:			<u></u>
This Statement of Special Building Code. It includes as well as the identity of the inspections. If applicable, Resistance. Are Requirements for Security Inspections? Are Requirements for W	s a Schedule of Spende individuals, agend it includes Required in the second research research in the second research rese	ecial Inspect ncies, or firm ments for Se ncluded in th	ion Servic s intende eismic Res e Statem	ces appli d to be r sistance ent of S _l	cable to the above retained for condu and/or Requirent pecial	ve-reference ucting these nents for Win	d Project
The Special Inspector(s) second and to the Building Official and to the the Design Professional as immediate attention of the shall be brought to the attention of the Charge prior to completion special inspections and consultations of the Building Official and the Frequency of interim repo	e Registered Design nd the Building Offi e Contractor for corr ention of the Buildir n of that phase of w orrections of any dis degistered Design P	n Profession cial prior to to the cial prior to the certion. If the cial are cork. A Final screpancies professional in the cial prior to t	al in Resp the start of e discrepa nd the Reg I Report of noted in the in Respor	oonsible of work. I ancies a gistered of Specia he inspecial	Charge at a frequencies share not corrected, Design Profession Inspections documents at the concept at the conc	uency agree all be broughthe discrepa and in Responding resulting resulting resulting of the lusion of the	ed upon by ht to the ancies onsible equired he
, ,	Bi-Weekly	_				-	
The Special Inspection proposed in the Community of the C	ogram does not reli	eve the Con	tractor of	the resp	onsibility to comp	oly with the	
Statement of Special Insp	ections Prepared by	y:			Prep	parer's Seal	
Type or print name							
Signature	Date						
Building Official's Accepta	nce:						
Signature		Date					
Permit Number:							
Frequency of interim repo	rt submittals to the	Building Offi	cial:				
Monthly	Bi- Monthly	Upo	n Comple	etion	Other; spe	ecify:	

ACEC/SEAOG SI GL 01 – 12

Exhibit 37

From: James G. Munger, PhD <james@qdotengineering.com>

Sent: Thursday, December 12, 2019 5:01 PM

To:Massey, Clay; Fred BentleySubject:12-12-2019 Draft Report

Attachments: Sterigenics - Building and Fire Code Review and Analysis -12122019.pdf; Report Guide

120419 COMMENTS.pdf

Importance: High

EXTERNAL SENDER - Proceed with caution

Please find attached a copy of the latest draft of the report. Also attached is the prior comments from the county with our responses.

The Appendix should be sent by close of business tomorrow.

James G. Munger, PhD, FIFireE, BCO Partner Q-Dot Engineering, LLC 280 West Market St. York, PA 17401

cell: 256-736-3840

james@qdotengineering.com

BUILDING AND FIRE CODE REVIEW AND ANALYSIS

STERIGENICS 2971 OLYMPIC INDUSTRIAL DRIVE ATLANTA, GEORGIA 30339

REPORT PREPARED BY:

James G. Munger, PhD, FIFireE, CFPS
Patsy Warnick, PE, CSP

Q-Dot Engineering, LLC

December 12, 2019

SCOPE AND PURPOSE

The professional services of Q-Dot Engineering, LLC have been retained to conduct a code review and analysis of the *Sterigenics* facility as an independent third party. This report details the materials reviewed, research, and other work performed to conduct the design review and analysis. The report provides a background and history of the facility as well as the findings and recommendations of Q-Dot Engineering, LLC. This review, analysis and report is separate and distinct from any environmental matters regulated by the Georgia Environmental Protection Division (EPD).

MATERIALS REVIEWED

- 1. International Building Code, 2012 edition with Georgia amendments
- 2. International Fire Code, 2012 edition with Georgia amendments
- 3. International Mechanical Code, 2012 edition with Georgia amendments
- 4. International Fuel Gas Code, 2012 edition with Georgia amendments
- 5. Georgia Amendments to I-Codes 2014, 2015, 2017 and 2018
- 6. Rules and Regulations of the Safety Fire Commissioner, Chapter 120-3-3 Rules and Regulations for the State Minimum Fire Safety Standards
- 7. Adoption of NFPA Codes by Cobb County
- 8. National Electrical Code, 2017 edition
- 9. NFPA 400 Hazardous Materials Code, 2013 edition
- 10. NFPA 55 Compressed Gases and Cryogenic Fluids Code, 2013 edition
- 11.NFPA 560 Standard for the Storage, Handling, and Use of Ethylene Oxide for Sterilization and Fumigation, 2007 edition
- 12. NFPA 68 Standard on Explosion Protection by Deflagration Venting, 2007 edition
- 13. NFPA 69 Standard on Explosion Prevention Systems, 2008 edition
- 14. NFPA 13 Standard of the Installation of Fire Sprinkler Systems, 2013 edition
- 15.NFPA 16, Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems, 2007 edition
- 16. NFPA 25, Standard for the Inspection, Testing and Maintenance of Water-Based Fire Protection Systems, 2011 edition

- 17. NFPA 101, Life Safety Code, 2012 edition
- 18. User's Guide for the International Performance Code for Buildings and Facilities, 2012 edition
- 19. Cobb County Building and Fire Code
- 20. Commodity and Fire Sprinkler System Evaluation Report, September 11, 2019 by Brandon Hofstead, PE - Pond
- 21. Hazard Evaluation Report, Revision 1, SSOE Group, September 8, 2015 by Richard W. Stehr, FPE.
- 22. Hazard Evaluation Report, SSOE Group, July 8, 2015 by Richard W. Stehr, FPE.
- 23. Certificate of Occupancy 1984
- 24. Remodeling files 1987
- 25. Certificate of Occupancy 1991
- 26. Certificate of Occupancy for addition of chamber/sterilization unit 1993
- 27. Certificate of Occupancy for additional space 1994
- 28. Certificate of Occupancy for additional space 1997
- 29. Certificate of Occupancy for office space 1999
- 30. Certificate of Occupancy and plans for recovery tank 1999
- 31. Certificate of Occupancy for adjoining storage space 2007
- 32. Certificate of Occupancy and plans for chamber and preconditioning room 2014
- 33. Plans for restrooms 2014
- 34. Plans for Chamber and Preconditioning room 2015
- 35. Plans for upgrading of emissions system/scrubber 2019
- 36. Record of fire department pre-incident planning tour on August 8, 2018
- 37. Tier 2 reports for 2012, 2014 and 2018
- 38. SDS for hazardous materials stored/used at the facility
- 39. Technical Product Data Sheet for EO drums
- 40. FDA Statement on concerns with medical device availability due to certain sterilization facility closures October 25, 2019

- 41. Chemical Safety Board Report (CSB) on Incident at Ontario, CA *Sterigenics* facility on August 19, 2004
- 42. Video of CSB regarding Ontario incident
- 43. Ethylene Oxide Product Stewardship Guidance Manual American Chemistry Council Ethylene Oxide/Ethylene Glycols Panel, 3rd edition
- 44. Ethylene Oxide EPA
- 45. New Jersey Department of Health Ethylene Oxide Hazardous Substance Fact Sheet, August 2016
- 46. Chemical Data Sheet for Ethylene Oxide Cameo Chemicals
- 47. WHO Chemical Assessment Document 54 on Ethylene Oxide
- 48. Sterigenics statement on updates and construction timing, September 6, 2019
- 49. Sterigenics comments on Georgia EPD's Investigation Findings, October 3, 2019
- 50. October 9, 2019 letter from Georgia EPD to *Sterigenics* requesting additional information
- 51. October 1, 2019 letter from Cobb County to Clay Massey regarding continued suspension of Sterilization Services and Requirement for Certificate of Occupancy
- 52. October 10, 2019 letter from Clay Massey to Cobb County regarding continued suspension of Sterilization Services and Requirement for Certificate of Occupancy
- 53. October 11, 2019 letter from Cobb County to Pond Constructors regarding permit 2019-007189 and amended plans
- 54. October 11, 2019 letter from Cobb County Fire Department to Clay Massey regarding requirement for new certificate of occupancy
- 55. September 6, 2019 statement of Georgia Governor Brian Kemp regarding Sterigenics
- 56. September 26, 2019 statement from Cobb County District 2 Commissioner Bob Ott

SITE INSPECTION

A site inspection was conducted on November 8, 2019. Present during that inspection, in addition to James G. Munger, PhD, FiFireE, CFPS, were the following individuals:

- Clay Massey, Alston and Bird LLP, 1201 West Peachtree Street, Atlanta,
 Georgia 30309.
- Mark Hanselman, Pond, 3500 Parkway Lane, Suite 500, Peachtree Corners,
 Georgia 30092.
- Kyle Wright, Pond, 3500 Parkway Lane, Suite 500, Peachtree Corners, Georgia 30092.
- Brandon Hofstead, FPE, Pond, 3500 Parkway Lane, Suite 500, Peachtree Corners, Georgia 30092.
- Dave De Fina, Sterigenics, 2015 Spring Road, Suite 650, Oak Brook, IL 60523.
- Daryl Mosby, Sterigenics, 2971 Olympic Industrial Drive, Suite 116, Atlanta, Georgia 30339.
- Elbert Sabb, *Sterigenics*, 2971 Olympic Industrial Drive, Suite 116, Atlanta, Georgia 30339.

In addition to the site visit, numerous conference calls were conducted involving the participating parties. A meeting was also held with the code officials and legal counsel from Cobb County.

FACILITY BACKGROUND

The building was originally constructed in 1966 as a multi-tenant, industrial-type strip center. The building is of Type IIB construction and is one story in height. The portion of the building subject to this review and analysis was initially occupied by a medical sterilization facility using ethylene oxide (EO) named *Griffith Micro Science Laboratories*. This occupancy reportedly began in the 1970's. *Griffith* later underwent a name change to *Sterigenics*. This portion of the building is approximately 68,650 square

feet in area. The facility is occupied 24 hours per day, seven days per week. It is understood that no records exist from the original construction and occupancy. On August 15, 2019, a permit was obtained to install the updated emission control/ventilation system. The facility voluntarily shut down operations pending the completion of the system. It was during this process that Cobb County code officials classified the occupancy as Group H – Hazardous in accordance with the *International Building Code*, 2012 edition. A stop work order was issued and the facility was formally ordered to cease all operations on October 11, 2019. The following chart details the various records produced by *Sterigenics* regarding work and Certificates of Occupancy.

YEAR	OWNER	OCCUPANCY TYPE	WORK/AREA	C OF O ISSUED	
1985	Griffith	Industrial	2971 Olympic Dr. 16,320 sq. ft.	Yes #0961	
1987	Griffith	Industrial	Remodeling 2973 Olympic Dr. 16,320 sq. ft	No	
1991	Griffith	Storage	2973 Olympic Dr. 1232 sq. ft.	Yes #00180	
1992	Griffith	Industrial	2973 Olympic Dr. Chamber – new sterilization unit.	Yes #02381	
1994	Griffith	Light Industrial	2973 Industrial Dr, 1365 sq. ft.	Yes #03549	
1998	Griffith	Industrial/Storage	2973 Industrial Dr. 2300 sq. ft. addition	Yes #08190	
1999	Griffith	Business (offices)	2973 Industrial Dr. 700 sq. ft.	Yes #09772	
1999	Griffith	Storage	2973 Industrial Dr. Recovery Tanks 700 sq. ft.	Yes #12644	
2007	Sterigenics	Storage	2973 Industrial Dr., Suite D Yes #30927 25,126 sq. ft.		
2014	Sterigenics	Industrial	2971 Industrial Dr. Chamber – Sterilization unit No Letter of completion		
2014	Sterigenics	Industrial	2971 Olympic Dr. Restrooms	No Letter of completion	
2015	Sterigenics	Industrial	Chamber and No preconditioning Letter of completion		
2019	Sterigenics		Upgrades to Emissions Control/Scrubber		

DESCRIPTION OF STERILIZATION OPERATIONS

The facility is a commercial contract sterilization facility that utilizes ethylene oxide to sterilize customers' product. Ethylene oxide is a sterilant that regulatory agencies such as the U.S. Food and Drug Administration and U.S. Environmental Protection Agency (administering the Federal Insecticide, Fungicide, and Rodenticide Act) allow to be used on products. In addition, medical devices must meet a certain level of sterility as regulated by the U.S. Food and Drug Administration and other regulatory agencies.

When ethylene oxide (EO) is used for medical device sterilization, the medical devices must have a specifically defined sterilization process, which is validated for a specific sterilization chamber(s). This facility uses ten sterilization chambers ranging in capacity from six to thirty pallets. While all ten sterilization chambers are similar in design, each chamber may only process products approved for that chamber and cannot process other products that have not been validated and approved by the appropriate regulatory agency for that specific chamber. As a contract sterilization facility, the facility sterilizes many different products from many different customers and each product has specific requirements which specify details of the sterilization process to be followed.

[Reference September 11, 2019 letter from Pond to Nicolas Dawe and Kevin Gobble]

Step 1 – Receiving

Customers ship packaged products to the *Sterigenics* facility on trucks. The products are offloaded and temporarily stored until the facility begins the sterilization process. The products are not repackaged or changed during the sterilization process.

Step 2 – Preconditioning

The next step after receipt of the product is to place the product into a preconditioning room. Preconditioning rooms are enclosed rooms which are heated and maintained at high humidity to prepare the product for sterilization. Each product is held in the

preconditioning room for the time required for the specific product. No ethylene oxide is introduced or present in this step of the process. Once preconditioning is complete, the product is moved to the appropriate sterilization chamber.

Step 3 – Chamber Operation, Vacuum Pump Emissions

Once the product is loaded into the chamber, the chamber is closed and sealed. At the beginning of each sterilization cycle, safety checks are performed to ensure ethylene oxide does not escape from the chamber during the cycle. In addition, the cycle is monitored to ensure that vacuum is maintained within acceptable parameters. There is a validated cycle for the chamber that is product specific. The sterilization process begins with evacuating the air from the chamber and introducing nitrogen. While under negative pressure inside the chamber, ethylene oxide is introduced into the sterilization chamber to sterilize the product. Once ethylene oxide is introduced, the dwell stage can last from thirty minutes to several hours depending on the product. Once complete, the sterilization chamber vacuum pumps remove most of the ethylene oxide from the chamber by exhausting and purging with nitrogen multiple times. Vacuum pump emissions are routed to the *Ceilcote* wet acid scrubber.

Step 4 – Backvents and Aeration Emissions

Once the sterilization chamber process is complete and the chamber door is partially opened, a back-vent fan activates to extract residual amounts of ethylene oxide from the chamber. This fan remains on while the chamber door is open. After fifteen minutes, the pallets of product are removed from the sterilization chamber and placed into aeration rooms to further off-gas residual EO. Both the back vents and aeration rooms are ducted to an AAT scrubber system and treated with dry bed reactors. After the products have completed the sterilization and aeration process, they are loaded onto trucks and shipped back to the customers. The *Sterigenics* policy is to transport processed product from the chamber to the aeration room without delay or pallet staging.

EMISSIONS CONTROL SYSTEM - SCRUBBER - VENTILATION - HVAC

The current project addresses improvements to the emission control measures at the *Sterigenics* facility. The intention is to further reduce the ethylene oxide emissions and includes several modifications to the scrubbing process. The existing vacuum pump wet scrubber (EC3) is being tied in series with the larger existing aeration room scrubber (EC2); this "double scrubs" the air that comes from the sterilization chambers. The second wet scrubber treats exhausted air from the first wet scrubber along with exhausted air from the aeration rooms. The exhaust is then passed through dry beds for a third treatment. Dry beds are a chemical absorption process where the air being scrubbed passes through a layer of granular media. When the air stream passes through the media, a chemical absorption occurs that results in the captured ethylene oxide being rendered inert.

[Reference September 11, 2019 letter from Pond to Nicolas Dawe and Kevin Gobble]

Mechanical HVAC Design

The existing ventilation of the building utilizes a supply of outside air circulated through the building and then exhausted to the atmosphere. The new building mechanical ventilation systems have been redesigned in the sterilization areas to create a negative pressure. The supply air will be drawn from strategic locations through ductwork and routed through the new dry beds to remove ethylene oxide from the building interior. The negative pressure in the building will be approximately about 0.25 psi, to contain emissions in a total permanent enclosure. Creating a negative pressure within the sterilization areas of the building will effectively result in the capture of fugitive emissions through the dry beds before being exhausted.

Exhaust Stacks

After the air passes through the scrubbing systems, it will be discharged through two existing exhaust stacks approximately 80-feet above the ground. The height and velocity of the stack discharge disperses the exhausted air well above the ground. This approach was determined by the EPD as acceptable.

MONITORING AND LEVELS

A monitoring system to detect the presence of EO vapors is installed throughout the *Sterigenics* facility. These systems include monitors for LEL (lower explosive limits) and for GC. The levels are reflected visually throughout the facility as follows:

		LIGHT LEGEN	D	
COLOR	ASL	ASL HORN	SRI LEVEL	LEL LEVEL
DED	FLASHING — ALL	CONSTANT - ALL	N/A	≥ 25%
RED	SOLID — ALL	INTERMITTENT - ALL	≥50 ppm	≥ 10%
VELLOW	FLASHING — LOCAL	WHEN THRESHOLD IS EXCEEDED: SLOW INTERMITTENT	≥5 ppm	N/A
YELLOW	SOLID - LOCAL		≥3 ppm	N/A
CDEEN	FLASHING — LOCAL	LOCAL FOR 1 MIN	≥1 ppm	N/A
GREEN	SOLID — LOCAL	SILENT	NONE DETECTED	N/A

An overall drawing showing the monitoring is contained in the appendix of this report.

According to data provided by *Sterigenics*, the EO concentrations in the aeration room are typically less than 75 ppm, with an average of 30 ppm for the first three quarters of 2019 while the facility was in operation. Furthermore, the EO concentrations in the sterilization chamber have remained below the LEL.

RACK STORAGE

Materials received from the various customers and processed by the facility are stored on racks in the receiving, preconditioning, and aeration rooms. There are no records detailing the installation of the racking systems and it appears the racks were not part of the original design. It appears the existing sprinkler protection was not specifically designed or installed to protect the hazard presented by "high pile rack storage". The majority of storage consists of multi-row racks 4-feet deep, with two 9-foot high rack levels reaching approximately 18-feet in height to the top of the rack support structure, leaving

a 5-inch flue space and aisle widths greater than 8-feet between racking arrays. Commodities are stored to a maximum height of approximately 18-feet to the top of the commodity. Storage includes Class1-IV commodities and includes undetermined amounts of Group A plastics. Other miscellaneous storage is below 12 feet.

Pallets hold cardboard boxes and the pallets are primarily wooden, but a few plastic pallets are utilized. Empty pallet storage is below four feet.

Reference: Commodity and Fire Sprinkler Evaluation Report by Pond, dated September 11, 2019 for the following.

If the AHJ were to require compliance with the new codes due to the severity of the fire hazard per NFPA Section 1.4.2, the sprinkler system would require upgrading, as the encapsulated commodities would require higher design densities than those applicable in the past, and new code would require in-rack protection.

RETROACTIVE APPLICATION OF CODES

In general, the building and fire codes are only applicable to new construction, additions or an actual change of use or occupancy. However, there are specific provisions of the codes that are either specifically applied to existing buildings or give the authority having jurisdiction the ability to enforce appropriate portions of the code to distinct fire and life safety hazards. Those provisions can be found in:

- The International Building Code (IBC) Section 102.6
- The International Fire Code (IFC) Sections 102.1 and 110.1.1
- NFPA 560 Section 1.4.2, and;
- NFPA 400 1.4.2

The provisions of the IBC, IFC, NFPA 560 and NFPA 400 note that if the AHJ determines that an existing condition presents an unacceptable degree of risk, the AHJ has the authority to retroactively apply the appropriate provisions of the codes.

PRESCRIPTIVE V. ALTERNATIVE METHODS AND MATERIALS

The traditional approach of the application of building and fire codes has been what is known as "prescriptive". That is the codes "prescribe" exactly what must be done to meet the "code". This includes building height and area limitations, fire protection systems installations, means of egress requirements, and provisions for various subsystems such as electrical, mechanical and plumbing. While the prescriptive approach provides a pathway to meet the intent of the codes, it does not address those situations where it is impractical to meet the various prescriptive requirements. The IBC recognizes this in Section 104.10 Modification. The codes also contain provisions for what are known as "Alternative materials, design, methods of construction and equipment". This is contained in Section 104.11 of the IBC.

The "alternative materials, design, methods of construction and equipment" approach can also be referred to as "performance". In this type of approach, the prescriptive rules are set aside in favor of establishing mutually agreed upon design, construction and safety goals and objectives. This method allows the widest possible design and construction latitude while assuring a reasonable level of safety for the occupants and structure.

The prescriptive approach is appropriate for most code requirements in the Atlanta facility. The only exception is for the allowable area. This is discussed in more detail in the "Allowable Areas and Separation Requirements" section of this report.

PRIOR FIRE DEPARTMENT RESPONSES

According to the data provided by the Cobb County Fire Department from 2009 through 2019, the department responded to the facility a total of 35 times. Of those, 29 were false or unintentional fire alarm activations. Of the remaining six, one involved a chemical leak/spill in 2018, one a small flash fire in 2018, and the other four were EMS (medical) related incidents.

INCIDENT AT ONTARIO, CALIFORNIA FACILITY

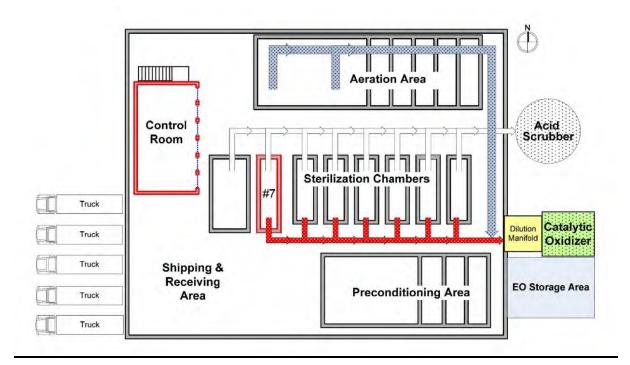
Reference: U.S. CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD INVESTIGATION REPORT 2004-11-1-CA

On August 19, 2004, an explosion occurred at the *Sterigenics* International, Inc., ethylene oxide (EO) sterilization facility in Ontario, California.

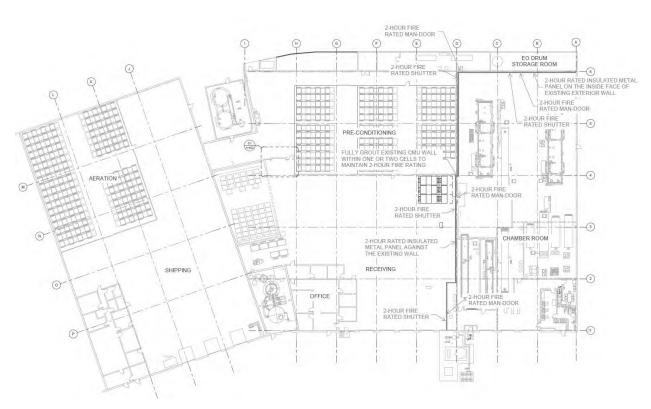
The U.S. Chemical Safety and Hazard Investigation Board (CSB) determined that maintenance personnel overrode safety devices and EO flowed through the ventilation system from a sterilizer to an open-flame catalytic oxidizer (oxidizer) where it ignited. The flame traveled back to the sterilizing chamber through the ventilation system duct and ignited a large volume of EO in the chamber.

According to information provided by *Sterigenics*, the recommendations of the Chemical Safety Board have been applied to the Atlanta facility. While the Atlanta and Ontario facilities utilize the same sterilization process and are very close in overall square footage, there is a significant difference in the layout of the two facilities. The Atlanta facility provides very distinct separation between the pre-conditioning, sterilization chamber, and aeration rooms. In the Ontario facility, separation is only provided for the pre-conditioning and aeration rooms. Additionally, the open-flame catalytic oxidizer is not used in the Atlanta facility.

According to the information obtained from Ontario FM, the Ontario facility is classified as an H-1 occupancy. An alternative materials, design, methods of construction and equipment approach was used in Ontario facility as it exceeds the allowable area for an H-1 occupancy. This alternative approach was the inclusion of safety controls related to the use of the EO. This information was obtained from Deputy Chief/Fire Marshal Paul Ehrman and Deputy Fire Marshal Michelle Starkey – Ontario Fire Department.



ONTARIO PLANT LAYOUT TAKEN FROM THE PUBLIC REPORT BY THE CSB.



ATLANTA PLANT LAYOUT - PLANS AS PART OF PUBLIC RECORD OF COBB COUNTY

GEORGIA ENVIRONMENTAL PROTECTION DIVISION (EPD)

On June 31, 2019, an incident occurred at the facility which involved the release of approximately 5.6 pounds of EO. According to EPD reports, facility staff explanation, and as observed during the site visit, the sterilization drums of EO are connected through hoses to the sterilization chamber. The weight of each drum is continuously monitored while the drum is hooked into the sterilization system. Once a drum reaches a certain weight, there is not enough gas left in the drum to pressurize the system. There is a policy in place that when there are ten pounds or less left in a drum it is to be disconnected and ultimately returned to the vendor. Once a drum is low, an employee will shut off the valve, unhook the drum and plug the port. They will then hook up a new drum and leave the used drum in the operations area to be picked up later. They utilize gas chromatography (GC) and lower explosive level sensors (LEL) to continuously monitor for potential leaks of EO in the facility. In this incident, the valve on the used drum was not completely shut off and the port was not plugged. When the LEL/GC indicated a potential leak, the operations area was evacuated. Staff then suited up in their personal protective equipment (PPE) and used a photoionization detector (PID) to determine that there was a leak and that the improperly secured used drum was the source. They determined that the drum had released 5.6 pounds of EO by weighing the used drum.

EPD is the regulatory authority having jurisdiction having approval of the emissions control system, including overseeing and approving its final installation. The proposed modifications to the emissions system have been approved by EPD and are the basis of the plans for the alteration of the emissions system submitted to Cobb County, dated July 26, 2019.

TYPE OF BUILDING CONSTRUCTION

Construction Type: IBC - IIB (SBC Type IV unprotected)

HAZARDOUS MATERIALS – STORAGE AND USE

Various hazardous materials are stored and/or utilized at the facility. Hazardous materials are defined in the IBC, IFC and NFPA 400 as: Those chemicals or substances

which are *physical hazards* or *health hazards* as whether the materials are in usable or waste condition. The IBC, IFC and NFPA 400 establish various Maximum Allowable Quantities (MAQ) for hazardous materials based on their classification. The MAQ's are established for materials in storage, used in closed systems and used in open systems. The use of the EO in the sterilization/chamber room is a combination of closed and open systems, with the open system limits being the most restrictive.

When the amounts present exceed the MAQ limits, the occupancy must be classified as Group H. The classification as a Group H occupancy, eliminates any MAQ limits. In other words, in a Group H occupancy the quantities of hazardous materials are unlimited.

Ethylene Glycol is stored in four separate scrubber tanks. The liquid in the tanks consists of a mixture with approximately 40% ethylene glycol, < 5% Sulfuric Acid, and the balance being water. Two of the tanks have a capacity of 17,000 gallons each, and the other two tanks are 11,850 gallons each. The 499,999 pounds total capacity would be if all tanks were filled to maximum capacity. All tanks are in dedicated areas with sealed secondary containment (diking).

Ethylene Oxide is stored in 55-gallon drums (approximately 400 pounds of EO liquid under pressure) meeting DOT requirements under 49 CFR 173.323. The maximum number of drums on-site at any given time is 28 (in storage and/or in use). Up to 10 drums could be in use in the sterilization chamber. The EO drums are stored in a dedicated, attached, covered and secured area. This area adjoins the sterilization chamber.

NFPA 400 specifies that when the quantities of hazardous materials exceed the MAQs, that Level 2 protection must be provided. As previously discussed in this report, the application of the provisions of NFPA 400 to an existing facility are limited to those existing conditions that present an unacceptable degree of risk.

Those requirements of Level 2 protection which are provided in this existing facility include: not less than 25% of the perimeter wall being an exterior wall, automatic fire sprinkler protection, and fire alarm and detection.

DETERMINATION OF OCCUPANCY CLASSIFICATIONS

Based on the Tier 2 reports provided by the facility, the quantities of hazardous materials exceed the MAQ limits. The facility cannot be classified as F or S, but must be classified as Group H. Group H occupancies are further divided into H1 through H5, dependent upon the type of hazard that the material presents. In order to establish the correct subcategory, the characteristics of the various hazardous materials must be considered. This information is based on the various SDS's provided by the facility. A chart showing the various hazardous materials, the classifications, and amounts is included with the report as an appendix.

EO is a Toxic Flammable Liquid which is also a Class 3 Reactive (unstable) product. Based on the data in the SDS for EO, the occupancy is correctly classified as an H-1/H-4. This would apply to both the storage and processing areas. When there are two more different hazard classifications, the more stringent must be applied. According to data provided by *Sterigenics*, the EO concentrations in the aeration room are typically less than 75 ppm. For the first three quarters of 2019, the average aeration room concentration was 30 ppm while the facility was in operation. Based on this information, the aeration room is well under the LEL and can be classified as S-1 storage.

ALLOWABLE AREA AND SEPARATION REQUIREMENTS

The provisions of the IBC Chapter 5 sets limits on the maximum allowable area permitted based on occupancy classification and construction type. It is important to note that Section 501.1 clearly states: "The provisions of this chapter control the height and area of structures hereafter erected and additions to existing structures"

The sterilization/chamber room contains approximately 17,000 square feet and as previously stated, the construction type is classified as Type IIB (formally under Standard Building Code, Type IV unprotected).

Based on IBC Table 503 the maximum allowable area for an H-1 occupancy in Type IIB construction is 7,000 square feet and for an H-4, the maximum allowable area is 17,500 H-1 occupancies must be separated from other buildings and property lines by not less than 75 ft per IBC 415.51.1. This would apply only if this were a newly constructed building, the actual occupancy classification/use of an existing building was changed or if additional area was added. None of these conditions apply to this facility.

While based on IBC Table 508.4, an H-1 must be a separate building older building codes merely required a fire rated separation between an H occupancy any other occupancies.

Even though the area requirements in the currently adopted IBC do not apply, options were considered to compliance. The first was to sub-divide the sterilization/chamber room into smaller areas meeting the current limits. This approach was eliminated due to it being very difficult, if not impossible to accomplish with all of the existing, large fixed equipment and building services.

Another alternative was to upgrade the construction type of Type IIB to Type IA. However, this was also eliminated due to the difficulty in achieving the required roof rating and even if the construction type was upgraded, the area would still be over the allowable area. This approach would also require the construction of a "fire wall" to separate the different construction types.

This obviously an existing building and no additional square footage is being added. As for the occupancy classification, the activities inside the facility have not changed. What has changed is the recognition of the actual hazards by the Cobb County Code Officials, which results in a change from Factory to High Hazard.

As discussed previously, there are two approaches that can be utilized for code compliance: prescriptive and alternative materials, design, methods of construction and equipment also known as "performance".

While the prescriptive area limits of the IBC 2012 edition do not apply to this existing facility, there is a desire to establish that a reasonable level of fire safety is provided with regard to the sterilization/chamber room area.

It is worth noting that even if this facility were to be newly constructed there would practical difficulties involved in carrying out the provisions of this code as they relate to the area limit for the sterilization/chamber room area.

There are several features of the existing facility that provide increased safety to compensate for the larger area of the sterilization/chamber room area and provide an equivalent level of fire safety. These features are actually recognized in the User's Guide for the 2012 edition of the International Performance Code for Buildings and Facilities, specifically in Chapter 22 Hazardous Materials.

These features are as follows:

- Detection of gas or vapor release: Where a release of hazardous materials gas or vapor would cause immediate harm to persons or property and where such materials would not be detectable at the danger threshold by sight or smell, an adequate means of detecting, diluting or otherwise mitigating the dangerous effects of a release shall be provided.
- Ventilation: Where ventilation is necessary to limit the risk of creating an emergency condition resulting from normal or abnormal operations, an adequate means of ventilation shall be provided.
- Written procedures for operation and emergency shutdown: Written documentation of pre-startup safety review procedures shall be developed and enforced to ensure that operations are initiated in a safe manner. The process of developing and updating such procedures shall involve participation of affected employees. Written documentation of operating procedures and procedures for emergency shutdown shall be developed and enforced to ensure that operations are conducted in a safe manner. The process of developing and updating such

procedures shall involve participation of affected employees. A written emergency response plan shall be developed to ensure that proper actions are taken in the event of an emergency, and the plan shall be followed if an emergency condition occurs. The process of developing and updating the plan shall involve participation of affected employees.

- Process hazard analyses: Process hazard analyses shall be conducted as necessary to reasonably ensure protection of people and property from dangerous conditions involving hazardous materials.
- Consequence analysis: here an accidental release of hazardous materials could endanger people or property off site, an analysis of the expected consequences of a plausible release shall be performed and utilized in the analysis and selection of active and passive hazard mitigation controls.

One additional feature is necessary which is reliable power for the Emissions Control, Scrubber, and Ventilation systems and the control room. The power supply for these systems is relied upon to prevent or control an emergency condition that could endanger people or property and because these systems and the control room provide the increased safety necessary as part of the alternative materials, design, methods of construction and equipment approach, an Emergency Power System in accordance with NFPA 70 Article 700 must be provided. Interruption of the primary power source from Georgia Power could produce serious life safety, fire safety or health hazards.

FIRE SPRINKLER AND FIRE ALARM SYSTEMS

The building is fully sprinkled and is also provided with a fire alarm and detection system. The fire risers for the building are located along the northern face of the building along Olympic Industrial Drive. Four wet-pipe risers are present along with a foam/water riser for the EO drum storage area. The incoming fire supply main consists of existing 6-inch and 8-inch flanged spigots into the *Sterigenics* area in three locations. The four wet-risers consist of alarm check valves, wall-indicator control valves, water flow switches, water motor gongs, and inspectors test connections.

The fire alarm system provides supervision of the fire sprinkler systems and is monitored off-site by ADT Security. Existing sprinkler heads more than 50 years old have been identified as deficiencies and must be replaced.

[Reference: Commodity and Fire Sprinkler System Evaluation Report by Brandon Hofstead, PE]

SPILL CONTROL AND RUN OFF PROTECTION

The provisions of the IFC require spill control and secondary containment for the EO storage area. The quantities of EO in the chamber room are below the thresholds. Details of the requirements are contained in the appendix of this report.

EXPLOSION PREVENTION AND PROTECTION

IFC Section 5705.3.7.5.2 provides that explosion control shall be provided in accordance with IFC Section 911. This would apply the sterilization/chamber room.

IFC 911.1 provides that explosion control be provided in accordance with NFPA 69 Standard on Explosion Prevention Systems.

NFPA 560 Section 13.2.5 provides that explosion control shall be provided in accordance with NFPA 55 Section 6.9. NFPA 55 Section 6.9 provides that explosion control shall be in accordance with NFPA 68 or NFPA 69.

Requirements for explosion venting are contained in NFPA 68. NFPA 68 states that the need for deflagration vents can be eliminated by the application of explosion prevention techniques described in NFPA 69, Standard on Explosion Prevention Systems.

NFPA 69 provides that explosion prevention can be provided control of flammable gas mixtures.

Section 8.1 provides: "The technique for combustible concentration reduction shall be permitted to be considered where the mixture of the combustible material and oxidant is

confined to an enclosure and where the concentration of the combustible can be maintained below the lower flammable limit (LEL).

An enclosure is defined as: "a confined or partially confined volume" Specifically listed examples of such enclosures include: a room, building, vessel, silo, bin, pipe, or duct.

According to the information provided by the facility, in the sterilization chambers, the EO is mixed with N2 at levels which maintains a nonflammable range (reference NFPA 560 B.2(b)). In the sterilization/chamber room itself, the emissions control exhaust maintains the level of EO to less than the LEL.

Based on the information provided by the facility and the requirements of NFPA 68 and NFPA 69, no additional explosion prevention or venting is required.

NFPA 101 LIFE SAFETY CODE COMPLIANCE

Under the provisions of NFPA 101 *Life Safety Code*, this facility would be classified as a mixed occupancy. Office areas as business, storage areas as storage and the sterilization/chamber room as high hazard industrial. Sprinkler protection and fire alarm are provided as required for a high hazard industrial occupancy. Limits on area of a high hazard industrial occupancy are not contained in NFPA 101 *Life Safety Code*.

ANAYSIS AND RECOMMENDATIONS

The various codes draw a distinction between the requirements for a new building in contrast to one which is already in existence and occupied. However, there are provisions of the applicable codes that empower the Authority Having Jurisdiction (AHJ), also known as the code official, to retroactively apply provisions of the codes in an effort to mitigate specifically identified hazards that represent a significant risk to life and property.

Given the increased knowledge and awareness of hazardous materials in general and specifically the storage and use of ethylene oxide, as well as the fire risk presented by high pile rack storage, it is reasonable and consistent with the intent of the codes for the

Cobb County code officials to require certain fire safety components of the building to be improved.

The provisions of the various ICodes and NFPA codes and standards are generally intended to establish the minimum requirements consistent with nationally recognized good practice to provide a reasonable level of life safety and property protection for the hazards of fire, explosion, or other dangerous conditions in both new and existing buildings, structures and premises, and to provide safety to fire fighters and emergency responders during emergency operations.

The IFC Code Commentary makes it clear that the codes do not attempt to achieve perfection by requiring every conceivable or available safeguard for every structure, premises or operation, but seeks to establish a minimum acceptable safety level to balance the many factors that must be considered including loss statistics, relative hazards, and the economic and social impact.

After a careful and diligent review of all the available information, Q-Dot Engineering, LLC makes the following recommendations:

RECOMMENDATION #1

Sterigenics be permitted to resume the installation of the upgrades to the emissions control system in accordance with the previously submitted plans. Any inspections required by the IMC, or the authority having jurisdiction, must be completed. Since no inspections have been conducted on the work already completed, it is possible that it may be necessary and required for the contractor to expose any portion of the system that has already been concealed. Manufacturer's manuals must be on site for all inspections. These inspections would include the receipt of balancing reports.

RECOMMENDATION #2

Q-Dot Engineering understands that in order for the undertake the commissioning/testing of the emissions control system that the plant must be in full operating condition. *Sterigenics* must provide a written protocol for the commissioning/testing procedure and

provide a copy of the results of the testing and approval by EPD. This testing does not include the environmental air testing of the exterior atmosphere.

RECOMMENDATION #3

The facility must provide to Cobb County Fire Marshall updated, as-built plans for the emissions control/scrubber system.

RECOMMENDATION #4

Plans must also be submitted for: 1) the upgrading of the wall separating the sterilization chamber from the remainder of the facility as a 2-hour fire resistance rated barrier, 2) the verification of the fire resistance of the wall separating the *Sterigenics* facility from the remainder of the overall building, 3) the security of the EO storage area from tampering and entry by unauthorized persons, 4) temperature monitoring of the EO storage area, and 5) spill control and containment for the EO storage area, possibly in the form of diking or barriers.

RECOMMENDATION #5

A fire and life safety plan must be prepared and submitted to Cobb County Fire Marshall. This plan must include the following:

- Occupancy Classification(s)
- Listing of all applicable codes
- Construction Type
- Full and complete description of the overall operation of the facility from the receipt of materials to be sterilized, pre-conditioning, sterilization, aeration and final storage.
- Floor plan with dimensions
- Square footage of each room or area.
- Occupant load for each room or area (calculated and actual)

- Egress plan (location and identification of all exits, travel route/distance including dead ends and common path with distances)
- Location of all fire-rated barriers
- Location of all fire sprinkler risers
- Location of all Fire Department Connections
- Location of all Fire Alarm Control Panel(s) and annunciators
- Location of Knox Box

RECOMMENDATION #6

Information regarding the hazardous materials storage and used on the facility must be provided to Cobb County. This includes:

- Quantities of all hazardous materials and locations
- SDS for all hazardous materials
- International Fire Code, Appendix H HMIS, HMMP

RECOMMENDATION #7

The fire sprinkler protection in all areas of rack storage must be upgraded to meet the current requirements of NFPA 13 for such storage arrangements. Protection to be designed for Group A plastics. Additionally, all sprinkler heads which are 50 years old or older must be replaced.

RECOMMEDATION #8

Emergency power in accordance with NFPA 70 Article 700 Emergency Systems must be provided for the Emissions Control, Scrubber, and Ventilation systems and the control room.

RECOMMENDATION #9

Process hazard analyses must be conducted as necessary to reasonably ensure protection of people and property from dangerous conditions involving hazardous materials.

RECOMMEDATION #10

Following the provisions of NFPA 1620 *Standard on Pre-incident Planning*, Cobb County and the facility must develop, exercise and maintain a pre-incident plan to assist both facility and emergency responders in effectively managing incidents and events for the protection of occupants, responding personnel, property and the environment.

TIME FRAMES

It is recognized that the facility is at a critical point of needing to recommence its operations in order to begin the EPD testing of the new emissions controls at the facility. Further, in order to begin the EPD required air sampling at the beginning of January, Sterigenics must begin sterilizing medical products in its sterilization chambers in accordance with normal operations, pursuant the approved EPD testing protocol. Based on the code analysis and review, the following time schedule is proposed:

- Sterigenics should be allowed to immediately complete construction of the emissions control modifications under the existing August 15, 2019 application for building permit at this time. No use of ethylene oxide will be used in the facility and no sterilization operations will occur in the facility while this construction is completed.
- 2. Upon completion of the emissions control modifications work at the facility, Sterigenics can recommence normal sterilization operations using ethylene oxide at the facility under its current certificates of occupancy for the purpose of testing the emissions control modifications pursuant to the EPD Consent Order, in accordance with the testing protocol the EPD has approved. Sterigenics should be allowed to operate the facility for this purpose for the length of time necessary to complete the testing pursuant to the EPD-approved protocol.

- 3. Within 45 days, Sterigenics must submit permit drawings and a building permit application to the County for the facility modifications. Upon receipt of those permit plans and the permit application, the County should review the plans and application for approval and issue a building permit for the modifications during the period when the facility is operated for EPD testing purposes. Together with issuing the building permit for the modifications, the County may issue a temporary certificate of occupancy for the facility in accordance with 2012 IBC Section 111.3 enabling Sterigenics to occupy the facility for its sterilization operations while the modifications are completed. The time period for the temporary certificate of occupancy may be limited to 7 months from issuance of the temporary certificate of occupancy.
- 4. The emergency power system is to be installed within 12 months from the issuance of the temporary certificate of occupancy.
- 5. Upon completion of Recommendations 1 through 8 and the County's inspections and approval of those modifications, the County may issue the facility a new full Certificate of Occupancy for the entire space of Sterigenics' facility, identifying the occupancy classifications for each area of the facility under the 2012 IBC.

CONCLUSION

it is the professional opinion of Qdot Engineering, LLC that these recommendations are consistent with nationally recognized good practice and will provide a reasonable level of life safety and property protection for the hazards of fire, explosion, or other dangerous conditions in this existing facility and will provide safety to fire fighters and emergency responders during emergency operations.

Building and Fire Code Review and Analysis - Sterigenics					
James G. Munger, PhD, FIFireE, BCO					
Patsy Warnick, PE, CSP					

Report Guide COMMENTS

This report should create a roadmap for the issuance of a Certificate of Occupancy for the entire 68,650 square feet of the facility. This document should provide the jurisdiction (AHJ) with necessary details and information to conduct a thorough review of the building and systems. The report must evaluate all applicable codes and standards. COMMENT: Done

Throughout the report, prescriptive requirements must be identified in each area of compliance. Conclusive statements must be included to confirm compliance or designate a design criterion which would achieve compliance. Where prescriptive requirements are not met, performance design must be demonstrated based on the requirements of NFPA 101 Chapter 5 of the Life Safety Code. COMMENT: The only area which is not addressed prescriptively is the allowable area which is not a Life Safety Code issue.

Code requirement must be based on the 2012 IBC, 2012 IFC, 2012 LSC, along with applicable reference codes and GA amendments.

- Identify and demonstrate occupancy classification and requirements based on IBC, and LSC with indicating evidence. COMMENT: Completed
- 2. Identify the quantities of all hazardous materials to be kept and/or used on site. COMMENT: Addressed in both the body of report and appendix.
- Identify the MAQs for each hazardous material with criteria and specific reference to charts in the building and fire codes. COMMENTS: MAQ charts are included in the appendix. However, as a Group H facility, there are no MAQ limits.
- 4. Identify and demonstrate method of compliance with height and area requirements from the IBC based on occupancy classification and hazardous materials quantities. COMMENT: Addressed in report.
- 5. Indicate the maximum amounts of hazardous materials to be used and/or stored in the facility. COMMENT: Addressed in the body of the report and in appendix.
- 6. Explain the type and level of protection that is necessary to safely store and handle these materials in and outside of the building. COMMENT: Addressed in the report.
- 7. Determine how the materials are to be used and cite if the systems are to be closed or open to the atmosphere. COMMENT: Addressed in the report.
- 8. Determine the control areas and fire-resistance rated assemblies separating spaces. COMMENT: As a Group H, there are no requirements for control areas. Plans to be submitted address the 2 hour separation of the sterilization/chamber room.
- Identify and demonstrate compliance with all other applicable codes as referenced in "Materials Reviewed" section and add NFPA 101, 2012 IMC, and County codes. COMMENT: 2012 IMC was included in the original list. NFPA 101 and County codes have been added.

Once these items are addressed then we can continue to work through additional details, recommendations, and compliance.

Exhibit 38

Massey, Clay

From: James G. Munger, PhD < james@qdotengineering.com>

Sent: Monday, December 23, 2019 4:04 PM

To: Massey, Clay **Subject:** Follow -up point

EXTERNAL SENDER - Proceed with caution

The county rejected my report as it was written.

James G. Munger, PhD, FIFireE, BCO Partner Q-Dot Engineering, LLC 280 West Market St. York, PA 17401

cell: 256-736-3840

james@qdotengineering.com

Exhibit 39

Massey, Clay

From: James G. Munger, PhD <james@qdotengineering.com>

Sent: Monday, December 23, 2019 4:01 PM

To: Massey, Clay **Subject:** Report

EXTERNAL SENDER - Proceed with caution

Patsy has now has responsibility for the report. She rewrote the report after the call with the country officials. All comments must be sent to her.

James G. Munger, PhD, FIFireE, BCO Partner Q-Dot Engineering, LLC 280 West Market St. York, PA 17401

cell: 256-736-3840

james@qdotengineering.com

Exhibit 40

Massey, Clay

From: James G. Munger, PhD <james@qdotengineering.com>

Sent: Friday, December 27, 2019 3:10 PM **To:** Fred Bentley; Johnson, Brian; Massey, Clay

Cc: Patsy Warnick; Tyler Mosman; Elisha-Kay Gross; Chad Walker; Rick Merck

Subject: STERIGENICS PROJECT

EXTERNAL SENDER - Proceed with caution

Effective immediately, I will no longer have an active role in this project. All comments, input, emails, correspondence, etc must be sent directly to Patsy Warnick. patsy@qdotengineering.com 240-328-9833

James G. Munger, PhD, FIFireE, BCO Partner Q-Dot Engineering, LLC 280 West Market St. York, PA 17401

cell: 256-736-3840

james@qdotengineering.com

Exhibit 41

From: Chad Walker <chad@qdotengineering.com>

Sent: Monday, December 23, 2019 2:33 PM

To: Jay.Westbrook@cobbcounty.org; Gobble, Kevin; Johnson, Brian; Bruce, Lauren; Fred

Bentley; Massey, Clay

Cc: Patsy Warnick; James G. Munger, PhD

Subject: Building and Fire Code Review and Analysis - Sterigenics

Attachments: Sterigenics Report 122319.pdf

EXTERNAL SENDER - Proceed with caution

Good afternoon:

Please see the attached report.

For any questions or concerns please contact Patsy Warnick.

Thank you and Happy Holidays!

Chad Walker

Project Coordinator



Q-Dot Engineering, LLC

280 West Market Street

York, PA 17401

www.qdotengineering.com

O: (717) 893-5006 M: (717) 887-6648

chad@qdotengineering.com

BUILDING AND FIRE CODE REVIEW AND ANALYSIS

STERIGENICS 2971 OLYMPIC INDUSTRIAL DRIVE ATLANTA, GEORGIA 30339

REPORT PREPARED BY:

James G. Munger, PhD, FIFireE, CFPS
Patsy Warnick, PE, CSP

Q-Dot Engineering, LLC

December 20, 2019

Table of Contents

Scope and Purpose	2
Reviewed Codes	2
Background Information	3
Codes Analysis	4
Determination of Use and Occupancy	4
NFPA 101 Life Safety Code	5
Existing Certificate of Occupancy	6
Code Analyses	6
IFC	6
IBC	9
Quantities of EO and Other Hazardous Materials	9
IBC Chapter 34	10
NFPA 400	10
IMC	11
Non-prescriptive Approaches to Code Compliance	12
Automatic Sprinkler and Fire Alarm Systems	14
Summary and Additional Recommendations	15
Time Frames	16
Conclusion	17
Appendix	19

Scope and Purpose

The professional services of Q-Dot Engineering, LLC have been retained to conduct a code review and analysis of the *Sterigenics* facility in Cobb County, Georgia as an independent third party. This report details the materials reviewed, research, and other work performed to conduct the general code compliance review and analysis. The report provides a brief background and history of the facility as well as the findings and recommendations from Q-Dot Engineering, LLC for code compliance.

Reviewed Codes Adopted by Cobb County, Georgia

- 1. International Building Code, 2012 edition with Georgia amendments revised 2018.
- 2. International Fire Code, 2012 edition with Georgia amendments revised 2014.
- 3. International Mechanical Code, 2012 edition with Georgia amendments revised 2015.
- 4. Rules and Regulations of the Safety Fire Commissioner, Chapter 120-3-3 Rules and Regulations for the State Minimum Fire Safety Standards, effective January 1, 2018.
- 5. NFPA 70 National Electrical Code, 2017 edition.
- 6. NFPA 55 Compressed Gases and Cryogenic Fluids Code, 2010 edition.
- 7. NFPA 68 Standard on Explosion Protection by Deflagration Venting, 2007 edition.
- 8. NFPA 69 Standard on Explosion Prevention Systems, 2008 edition.
- 9. NFPA 13 Standard of the Installation of Fire Sprinkler Systems, 2010 edition.
- 10. NFPA 16 Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems, 2011 edition.
- 11. NFPA 25, Standard for the Inspection, Testing and Maintenance of Water-Based Fire *Protection Systems*, 2011 edition.
- 12. NFPA 101, Life Safety Code, 2012 edition.

Additional materials reviewed for consideration as part of this report:

- 1. *User's Guide for the International Performance Code for Buildings and Facilities*, 2012 edition.
- 2. NFPA 400 *Hazardous Materials Code*, 2013 edition.

- 3. NFPA 560 Standard for the Storage, Handling, and Use of Ethylene Oxide for Sterilization and Fumigation, 2007 edition.
- 4. Commodity and Fire Sprinkler System Evaluation Report, September 11, 2019 by Brandon Hofstead, PE Pond.
- 5. Hazard Evaluation Report, Revision 1, SSOE Group, September 8, 2015 by Richard W. Stehr, FPE.
- 6. Hazard Evaluation Report, SSOE Group, July 8, 2015 by Richard W. Stehr, FPE.
- 7. Remodeling files 1987.
- 8. Certificates of Occupancy multiple. For a complete listing, see the appendix.
- 9. Plans for restrooms 2014.
- 10. Plans for Chamber and Preconditioning room 2015.
- 11. Plans for upgrading of emissions system/scrubber 2019.
- 12. Record of fire department pre-incident planning tour on August 8, 2018.
- 13. "Tier 2" reports for 2012, 2014 and 2018.
- 14. SDS for hazardous materials stored/used at the facility.
- 15. Technical Product Data Sheet for EO drums.
- 16. Chemical Safety Board Report (CSB) on Incident at Ontario, CA *Sterigenics* facility on August 19, 2004.
- 17. Ethylene Oxide Product Stewardship Guidance Manual American Chemistry Council Ethylene Oxide/Ethylene Glycols Panel, 3rd edition.
- 18. New Jersey Department of Health Ethylene Oxide Hazardous Substance Fact Sheet, August 2016.
- 19. Chemical Data Sheet for Ethylene Oxide Cameo Chemicals.
- 20. WHO Chemical Assessment Document 54 on Ethylene Oxide.

Background Information

The building was originally constructed in 1966 as a multi-tenant, industrial-type strip center. The portion of the building subject to this review and analysis was initially occupied by a medical sterilization facility using ethylene oxide (EO) named *Griffith Micro Science Laboratories*. This occupancy reportedly began in the 1970's. *Griffith* later underwent a name

change to *Sterigenics*. This portion of the building is approximately 68,650 square feet in area. The facility is occupied 24 hours per day, seven days per week. It is understood that no records exist from the original construction and occupancy.

Codes Analysis

	2012 IBC	2012 LSC	Current State
Use/ Classification	H-1/S-1	Industrial	H-1/S-1
Construction Type	-	-	II-B
Allowable Height	1;55'/2;55'	-	1/24.2'
Allowable Area	7,000/70,000*	-	15,236/56,494
Sprinklers Required?	Yes (903.2.5.1, 903.2.9)	Yes	Yes
Fire Alarm Required?	No	Yes	Yes
Special Provisions	Section 414, 415, 908, Ch 34	-	-

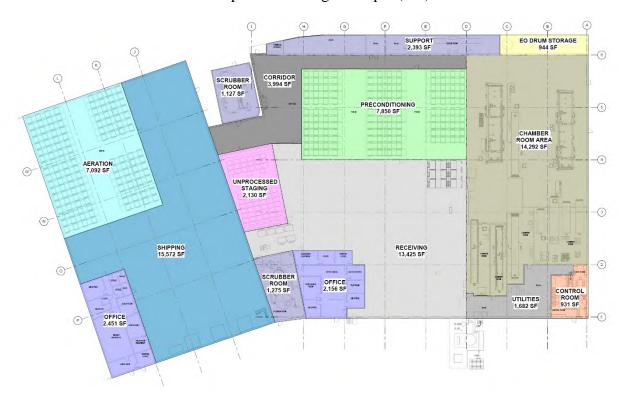
^{*}Allowable area increase of 300% for sprinkler coverage and no more than a single story above grade plane (Section 506.3).

Based on IBC Table 503 the maximum allowable area for an H-1 occupancy in Type IIB construction is 7,000 square feet and for an S-1, the maximum allowable area is 17,500. H-1 occupancies must be separated from other buildings and property lines by not less than 75 ft per IBC 415.51.1. This would apply only if this were a newly constructed building, the actual occupancy classification or use of an existing building was changed or if additional area was added.

Determination of Use Group/Occupancy Classification

The *Sterigenics* building is used for business, storage of commodities, storage of ethylene oxide, and use of ethylene oxide in the medical equipment sterilization process. The current storage and process areas appear to be separated by fire-resistive construction with unprotected openings for staff to easily transport commodities and EO between areas; therefore, the occupancy must be considered non-separated mixed use. Areas storing commodities before and after sterilization are Group S-1 areas in accordance with the 2012 edition of the IBC. The office area where business is conducted for the building is ancillary to the main building occupancies (not exceeding 10% of

the total aggregate occupancy areas) and is considered accessory space. Areas storing and using ethylene oxide in excess of the maximum allowable quantity (MAQ) cannot be considered storage or factory and must be considered High-Hazard. Ethylene oxide (EO) is an unstable Class 3 detonable material. Based on the IBC Table 307.1(1), the MAQ for storage and use of EO is five (5) pounds of liquid substance. The amount can be increased by 200% because the building is sprinkled and the EO is stored in approved containers in exhausted enclosures. Since the specified MAQ per control area is exceeded, the storage and use areas of EO must be classified as Group H (High-Hazard) per section 307.1 of the IBC. Section 307.3 further classifies this area as High-Hazard Group 1 specifically because EO is an unstable, Class 3 detonable material. In summary, the EO drum storage room (944 sq. ft.) and the chamber room area (14,292 sq. ft.) shown in the diagram below are considered High-Hazard Group 1 (H-1), and the remaining occupancy areas outside of business and mechanical space are Storage Group 1 (S-1).



NFPA 101 Life Safety Code

Under the provisions of NFPA 101 *Life Safety Code*, this facility would be classified as a mixed occupancy. Office areas are classified as Business, commodity storage areas as Storage, and the

EO storage and chamber room area as High-Hazard Industrial. Sprinkler protection and fire alarm are provided as required for a High-Hazard Industrial occupancy. Area limitations of High-Hazard Industrial occupancies and MAQ's are not contained in NFPA 101 *Life Safety Code*.

Existing Certificate of Occupancy

The portion of the building of the facility to the east totaling 25,126 square feet was formally 2971 Olympic Drive, Suite D and acquired in 2007. At that time a Certificate of Occupancy was issued for Storage based on the 2005 IBC. The use of the space, and the definition of "storage", have not changed since the issuance of the certificate; therefore, a change of use or occupancy is not needed for this space (includes the aeration room, shipping area, and east office).

The originally occupied portion of the building has undergone several permitted alterations and additions and has obtained multiple Certificates of Occupancy throughout the years. For each alteration or addition, the accompanying Certificate of Occupancy shows either Storage or an Industrial use group classification in accordance with the building or life safety code locally adopted at the time of issuance. From the information provided by *Sterigenics*, and after reviewing the permit submittals for the projects resulting in the Certificates of Occupancy obtained by the facility (listed in the appendix), it does not appear that there has been a change to the process used to sterilize the commodities or the chemicals used for sterilization. The use group classification of the areas throughout the facility as either Storage or High-Hazard Industrial appear to be consistent with the spaces as they are used today. Therefore, a change of use and occupancy is also not required for the remainder of the facility.

Code Analyses

It is the recommendation of the consultants to focus on the areas of highest risk or hazard. The following analyses are of those areas, their compliance with the currently adopted sections of code, and any recommended guidance for compliance of the facility.

<u>IFC</u>

The IFC Table 5003.8.2 contains the provisions for detached buildings containing hazardous materials. The table requires that a detached building be utilized for storage of EO when the Q-Dot Engineering, LLC

amount exceeds one ton of material. Based on the provided drawings from previous permit submittals, it appears that the storage area of EO (944 sq. ft.) was an addition and lies exterior (yet still enclosed) to the original building. The table also requires that the detached building be separated by distances to other buildings and lot lines as required by the IBC.

Regarding compliance of the EO storage area:

- It exceeds the MAQ of one ton of liquid pounds of storage which requires a detached building.
- It is in a separated enclosure, exterior to the building, however not in a physically detached, stand-alone building.
- It does not meet the separation distance from the building as required by the IBC (not less than 75 ft per section 415.5.1.1).

Recommendation for compliance:

Although this area is not prescriptively compliant with the IFC and IBC, it is separated by an exterior CMU wall with an inherent fire-resistive rating. The area is also protected by a foam water deluge system, which is an alternative method of compliance with greater mitigation properties than the required Extra Hazard Group 2 (.40 gpm over 2500 sq.ft.). For these reasons, it is recommended that the storage area be permitted to continue to be used as it has been, with the condition that any openings in the wall between the storage area and the main building be closed and/or restored to match the rating of the existing barrier. Any transfer of EO drums from the storage area should be to the building exterior and then into the main building process area(s) from the outdoors. This removal of communication from the EO storage area to the building interior will prevent any potential unintended transfer of materials to the building interior and significantly reduce the risk of detonation or fire.

Other Provisions of the IFC:

Section	Requirement	Areas	Compliant	Method
5004.2	Spill Control	EO Storage, Chamber Room	Yes	Containment
5004.2.2	Secondary Containment	EO Storage, Chamber Room	Yes	Monitoring
5004.3	Ventilation	EO Storage, Chamber Room	Yes	Mechanical
5004.6	Explosion Control	EO Storage, Chamber Room	Yes	Sec. 911
5004.7	Emergency Power	EO Storage, Chamber Room	No	Sec. 604

5004.9 E	Emergency Alarm	All	Yes	System
----------	-----------------	-----	-----	--------

For compliance with Chapter 60, Highly Toxic and Toxic Materials:

Section	Requirement	Areas	Compliant	Method
6003.1.3	Treatment System	EO Storage, Chamber Room	Yes	Scrubbers
6003.1.4	Indoor Storage	EO Storage	Yes	Separation
6003.1.5	Indoor Use	Chamber Room	Yes	Ventilation
6004	Toxic Gases	EO Storage, Chamber Room	Yes	Multiple

For compliance with Chapter 66, Unstable (Reactive) Materials:

Section	Requirement	Areas	Compliant	Method
6604.1.1	Comply with Ch 53	EO Storage, Chamber Room	Yes	Multiple
6604.1.1	Comply with Ch 56	EO Storage, Chamber Room	No	Detached bldg
6604.1.4	Storage Configuration	EO Storage, Chamber Room	Yes	Tanks

As shown in the tables above, there are only two areas of non-compliance. One lies in Section 6604.1.1 which requires that the reactive detonable material be located in a detached building. Compliance with this section has already been addressed, however, given the severity of the restrictions placed on the storage and use of unstable, detonable materials, it is further recommended that a detached building compliant with the provisions set forth in NFPA 400 and the IBC be constructed for the effective and safe storage of the EO.

The second section of non-compliance is Section 5004.7 which requires the facility to have emergency power for any required treatment systems, mechanical ventilation, alarm, or detection systems. The section further refers the user to Section 6004.2.2.8, which exempts the need for emergency power if approved fail-safe engineered systems are installed.

Recommendation for compliance:

The facility must provide documentation that the mechanical ventilation system, the associated emissions control system, and the detection and alarm system have fail-safe provisions in the event of loss of power. If these systems are fail-safe, emergency power is not required, and the facility is compliant. If the systems are not fail-safe, it is recommended that emergency power be provided

for the treatment system(s), required mechanical ventilation of the EO storage room and chamber room area, and the detection and alarm system. Given the history of a reliable power supply at the facility due to its proximity to the local electrical utility provider, emergency power would be a feasible method of compliance, but should be given a lower priority than other measures based on its impact and risk reduction of the overall occupancy.

IBC

The provisions of the IBC are similar to the IFC, therefore any section content that has already been addressed or are inherently achieved by the existing building, equipment, systems or its processes will not be re-analyzed.

Section	Requirement	Areas	Compliant	Method
414.1.3	Information Required	EO Storage, Chamber Room	Yes	Report
414.2	Control Areas	EO Storage, Chamber Room	Yes	Multiple
414.4	Fail safe systems	EO Storage, Chamber Room	Unknown	Multiple
414.5	Comply with IFC	EO Storage, Chamber Room	Yes	Multiple
415.3	Fire detection	EO Storage, Chamber Room	Yes	Sec. 907.2.5
415.4	Sprinkler system	All	Yes	Sec. 903.2.5
415.6	Meet H-1 and H-4	EO Storage, Chamber Room	Yes	Separation
908.3	Toxic gas alarm	All	Yes	Alarm System

For the main provisions of the IBC, the facility is compliant with one unknown exception that has been previously discussed: the installation of fail-safe systems. Section 414.4 requires fail-safe systems to prevent materials from "entering or leaving process or reaction systems at other than the intended time, rate, or path." Once it is shown that the mechanical ventilation, emissions control, and detection and alarm systems are designed to fulfill this purpose, it can be determined that the facility is in compliance with the special detailed requirements for hazardous materials in accordance with the IBC and IFC.

Quantities of Ethylene Oxide and Other Hazardous Materials

The ethylene oxide is stored in 55-gallon drums (approximately 400 pounds of EO liquid under pressure with a nitrogen balance) meeting DOT requirements under 49 CFR 173.323. The maximum number of drums on-site at any given time is 28 (in storage and/or in use). Up to 10 drums could be in use in the sterilization chamber. At a total of 11,200 pounds of EO and two control areas (the EO storage room and the chamber room area), the facility well exceeds the general MAQ of 15 liquid pounds of material per control area, and one ton (2,000 pounds) of material in the building prompting the necessity for a detached storage building.

Recommendation for compliance:

Given the nature of the existing construction and the mechanical ventilation and emissions control systems in place to capture and neutralize residual EO lost during processing, it is recommended that not more than one ton (five drums) of EO be permitted per control area at any given time.

Ethylene Glycol is stored in four separate scrubber tanks. The liquid in the tanks consists of a mixture with approximately 40% ethylene glycol, < 5% Sulfuric Acid, and the balance being water. Two of the tanks have a capacity of 17,000 gallons each, and the other two tanks are 11,850 gallons each. All tanks are in dedicated areas with sealed secondary containment. These chemicals are necessary for the neutralization of EO and are part of a closed treatment system. These areas appear to be compliant with the IBC and IFC and are consistent with the Certificates of Occupancy issued to them.

IBC Chapter 34

This chapter of the IBC specifically applies to alterations, repairs, additions, and changes of occupancy in an existing structure. Since the above levels of work are not occurring, this chapter is not applicable at this time. For the recommended repairs to the fire-resistive rated construction, it is recommended that the use of Chapter 34 be limited to Section 3401.4.2 for new and replacement materials.

NFPA 400

NFPA 400 specifies that when the quantities of a detonable hazardous material exceeds the MAQ, Level 1 protection must be provided. The application of the provisions of NFPA 400 to an existing facility are limited to those conditions that present an unacceptable degree of risk.

Section	Requirement	Areas	Compliant	Method
1.10	Emergency Planning	All	No	HMMP
5.2.2	Control Areas	EO Storage, Chamber Room	No	Separation
5.3.3	Protection Level 1	EO Storage, Chamber Room	Yes	Detonable
6.1.5	Ignition Source Control	All	Yes	Multiple
6.1.10	Electrical Wiring	All	Yes	NEC
6.2	High Haz MAQ's	EO Storage, Chamber Room	Partial	Multiple
6.3.2.3.2	Opening of Closed Sys	Chamber Room	Yes	Ventilation
19.4.1.3	Distance reduction	EO Storage, Chamber Room	Partial	Separation

NFPA 400 Section 19.4.1.3 allows for the use of an unpierced 2-hour fire-resistive rated wall extending 30 inches above and to the sides of the EO storage area in lieu of the required 75-foot minimum separation distance and setback from the building and property lines.

Recommendation for compliance:

To comply with the aforementioned sections of NFPA 400, it is recommended that the facility:

- Create and submit a Hazardous Materials Management Plan (HMMP), to be submitted to the Cobb County Code Officials for review and approval and review the HMMP not less than annually to revise as needed.
- Re-establish the integrity of the shared fire barrier between the EO storage room, the chamber room area, and any adjoining rooms, to be 2-hour fire resistive rated construction.
- Limit the quantity of aggregate EO to no greater than one ton per control area at all times.

International Mechanical Code (IMC)

Section	Requirement	Areas	Compliant	Method
403	Ventilation	All	Yes	Mechanical
502.8	Hazardous exhaust	EO Storage, Chamber Room	Yes	Mechanical
502.8.5	Opening closed systems	Chamber Room	Yes	Mechanical
502.9.4	Caged blowers (fans)	EO Storage, Chamber Room	Yes	In-duct
502.9.7.2	Ventilation velocity	EO Storage, Chamber Room	Unknown	Mechanical

The existing ventilation of the building utilizes a supply of outside air circulated through the building and then exhausted to the atmosphere. The new building mechanical ventilation systems have been redesigned in the sterilization areas to create a negative pressure. The supply air will be drawn from strategic locations through ductwork and routed through the new dry beds to remove ethylene oxide from the building interior. The negative pressure in the building will be approximately about 0.25 psi, to contain emissions in a total permanent enclosure. Creating a negative pressure within the sterilization areas of the building will effectively result in the capture of fugitive emissions through the dry beds before being exhausted.

For enclosures containing compressed toxic gases, the IMC requires an average ventilation velocity at the face of the enclosure of 200 feet per minute. It is unknown if the velocities at the openings into the chamber room area meet this average. The EO storage area is at ambient pressure.

Exhaust Stacks

After the air passes through the scrubbing systems, it will be discharged through two existing exhaust stacks approximately 80-feet above the ground. The height and velocity of the stack discharge disperses the exhausted air well above the ground. This approach was determined by the EPD as acceptable.

Non-prescriptive Approaches to Code Compliance

There are two approaches that can be utilized for code compliance: prescriptive and performance-based. The intent behind performance-based measures are to meet the intent of the code through

alternative materials, designs, methods of construction, or equipment when the prescriptive measures of the code cannot be practically met. Often in existing buildings there exist structural, logistical, or extreme financial hardships that prevent property owners from being able to come into strict compliance with the code when changes occur within the occupancy or in the code text itself.

For example, there are several performance-based features of the existing facility that can be seen as mitigating measures for the larger area of the chamber room area and provide an extra level of fire safety. These features are recognized in the *User's Guide for the 2012 edition of the International Performance Code for Buildings and Facilities*, specifically in Chapter 22 Hazardous Materials.

These features are as follows:

- Detection of gas or vapor release: Where a release of hazardous materials gas or vapor
 would cause immediate harm to persons or property and where such materials would not
 be detectable at the danger threshold by sight or smell, an adequate means of detecting,
 diluting or otherwise mitigating the dangerous effects of a release shall be provided.
- Ventilation: Where ventilation is necessary to limit the risk of creating an emergency condition resulting from normal or abnormal operations, an adequate means of ventilation shall be provided.
- Written procedures for operation and emergency shutdown: Written documentation of prestartup safety review procedures shall be developed and enforced to ensure that operations are initiated in a safe manner. Written documentation of operating procedures and procedures for emergency shutdown shall be developed and enforced to ensure that operations are conducted in a safe manner. The process of developing and updating such procedures shall involve participation of affected employees. A written emergency response plan shall be developed to ensure that proper actions are taken in the event of an emergency, and the plan shall be followed if an emergency condition occurs. The process of developing and updating the plan shall involve participation of affected employees.

- Process hazard analyses: Process hazard analyses shall be conducted as necessary to reasonably ensure protection of people and property from dangerous conditions involving hazardous materials.
- Consequence analysis: here an accidental release of hazardous materials could endanger
 people or property off site, an analysis of the expected consequences of a plausible release
 shall be performed and utilized in the analysis and selection of active and passive hazard
 mitigation controls.

An additional performance feature that can be used in this approach is reliable power for the emissions control, scrubber, and ventilation systems. The power supply for these systems is relied upon to prevent or control an emergency condition that could endanger people or property. It is recommended that an Emergency Power System in accordance with NFPA 70 Article 700 be provided. Interruption of the primary power source from Georgia Power could produce serious life safety, fire safety or health hazards.

Automatic Fire Sprinkler and Fire Alarm Sytems

The building is fully sprinkled and with a fire alarm and detection system.

Commodities awaiting processing and shipping are stored on racks in the receiving, preconditioning, and aeration rooms. There are no records detailing the installation of the racking systems and it appears the racks were not part of the original design. Commodities are stored to a maximum height of approximately 18 feet, which prompts requirements for high pile rack storage (. It appears the existing sprinkler protection was not specifically designed or installed to protect the hazard presented by high pile rack storage. Storage includes Class1-IV commodities and includes undetermined amounts of Group A plastics. Other miscellaneous storage is below 12 feet. Pallets hold cardboard boxes and the pallets are primarily wooden, but a few plastic pallets are utilized. Empty pallet storage is below four feet.

For compliance with the 2013 edition of NFPA 13, the sprinklers in the receiving, preconditioning, and aeration rooms would likely need to be updated to comply with Table 16.2.1.3.2 for Class IV commodities stored on racks over 12 ft in height, but less than 20 ft, for encapsulated goods on conventional pallets. Assuming an 8-foot aisle width, in-rack sprinklers, and a single rack configuration, the new design density could be between 0.40-0.45 gpm/ft2.

Recommendation for compliance:

Considering the existing nature of the storage (transient, short-term), and the existing approved sprinkler system, requiring an upgrade to the sprinkler system to meet current standards without a change of use or occupancy presents a measure of potentially low feasibility due to practical and financial hardships, and low impact in facility fire protection. The facility is mitigating ignition sources to prevent detonation of potential hazardous materials, minimizing the risk of fire throughout the building. If a fire would occur, the ability to control the fire prior to fire department arrival (provided no explosion occurs) is not significantly increased by the upgrading of the sprinkler system. It is strongly recommended that all sprinkler heads 50 years old or older be immediately replaced.

Summary and Additional Recommendations

The various codes draw a distinction between the requirements for a new building in contrast to one which is already in existence and occupied. However, there are provisions of the applicable codes that empower the Authority Having Jurisdiction (AHJ), also known as the code official, to retroactively apply provisions of the codes in an effort to mitigate specifically identified hazards that represent a significant risk to life and property.

Given the increased knowledge and awareness of hazardous materials in general and specifically the storage and use of ethylene oxide it is reasonable and consistent with the intent of the codes for the Cobb County code officials to require certain fire safety components of the building to be improved.

The various codes and standards are intended to provide a reasonable level of life safety and property protection from the hazards of fire, explosion, or other dangerous conditions in both new and existing buildings, structures and premises, and to provide safety to fire fighters and emergency responders during emergency operations.

The IFC Code Commentary makes it clear that the codes do not attempt to achieve perfection by requiring every conceivable or available safeguard for every structure, premises or operation, but seek to establish a minimum acceptable safety level to balance the many factors that must be considered including loss statistics, relative hazards, and the economic and social impact.

After a careful and diligent review of all the available information, Q-Dot Engineering, LLC makes

the following recommendations:

RECOMMENDATION #1

Sterigenics be permitted to resume the installation of the upgrades to the emissions control system in accordance with the previously submitted plans. Any inspections required by the IMC, or the

authority having jurisdiction, must be completed. Since no inspections have been conducted on

the work already completed, it is possible that it may be necessary and required for the contractor

to expose any portion of the system that has already been concealed. Manufacturer's manuals

must be on site for all inspections. These inspections would include the receipt of balancing

reports.

RECOMMENDATION #2

Sterigenics must provide the protocol (procedures from the manufacturer or system designer) for

testing and commissioning the emissions control system and provide a copy of the testing results

to the Cobb County Code Officials. A regular inspection, maintenance, and testing program must

be established and followed to ensure the continued proper operation of the system over the life of

the equipment. Records of inspection, maintenance, and testing must be available to code officials

upon request.

RECOMMENDATION #3

Plans be submitted for permits within 30 days of the Cobb County Code Officials' acceptance of

this report to 1) restore the wall(s) separating the chamber room area and the EO storage room

from the remainder of the facility as a 2-hour fire-resistive rated barrier; 2) restore any areas

lacking the fire resistance integrity in the walls separating the Sterigenics facility from the

remainder of the overall building.

RECOMMEDATION #4

Plans be submitted within six (6) months of Cobb County Code Officials' acceptance of this report

to provide emergency power in accordance with NFPA 70 Article 700 Emergency Systems for the

emissions control system, mechanical ventilation, and alarm systems.

Q-Dot Engineering, LLC

16

19

Time Frames

It is recognized that the facility is at a critical point of needing to recommence operations in order to begin EPD testing of the new emissions controls at the facility. Further, in order to begin the EPD required air sampling at the beginning of January, Sterigenics must begin sterilizing medical products in its sterilization chambers in accordance with normal operations, pursuant to the approved EPD testing protocol. Based on the code analysis and review, the following time schedule is proposed:

- 1. Sterigenics should be allowed to immediately complete construction of the emissions control modifications under the existing August 15, 2019 application for building permit at this time. No use of ethylene oxide will be used in the facility and no sterilization operations will occur in the facility while this construction is completed.
- 2. Upon completion of the emissions control modifications work at the facility, Sterigenics can recommence normal sterilization operations using ethylene oxide at the facility under its current Certificates of Occupancy for the purpose of testing the emissions control system pursuant to the EPD Consent Order, in accordance with the testing protocol the EPD has approved. The facility should limit the quantity of EO drums on site to no greater than one (1) ton per control area.
- 3. The emergency power system is to be installed within 12 months from the issuance of the permit from Cobb County.
- 4. Upon final inspection of permits issued as part of Recommendation #3, the County should issue the facility a new Certificate of Occupancy for the entire space of Sterigenics' facility, identifying the occupancy as separated mixed use, S-1/H-1 in accordance with the 2012 IBC.
- 5. Although the adoption of the 2018 edition of the codes is occurring in January of 2020, the areas of compliance and recommended guidance options remain generally unchanged.

Conclusion

It is the professional opinion of Qdot Engineering, LLC, that these recommendations are consistent with nationally recognized good practices and will provide a reasonable level of life safety and

property protection for the hazards of fire, explosion, or other dangerous conditions in this existing facility.

James G. Munder, PhD, FIFireE, BCO

Patsy Warnick, PE, CSP

12/23/19



APPENDIX

Certificates of Occupancy – Summary Table

The following chart details the various records produced by *Sterigenics* regarding work and Certificates of Occupancy.

YEAR	OWNER	OCCUPANCY TYPE	WORK/AREA	C OF O ISSUED
1985	Griffith	Industrial	2971 Olympic Dr. 16,320 sq. ft.	Yes #0961
1987	Griffith	Industrial	Remodeling 2973 Olympic Dr. 16,320 sq. ft	No
1991	Griffith	Storage	2973 Olympic Dr. 1232 sq. ft.	Yes #00180
1992	Griffith	Industrial	2973 Olympic Dr. Chamber – new sterilization unit.	Yes #02381
1994	Griffith	Light Industrial	2973 Industrial Dr, 1365 sq. ft.	Yes #03549
1998	Griffith	Industrial/Storage	*	
1999	Griffith	Business (offices)	2973 Industrial Dr. 700 sq. ft.	Yes #09772
1999	Griffith	Storage	2973 Industrial Dr. Yes #12644 Recovery Tanks 700 sq. ft.	
2007	Sterigenics	Storage	2973 Industrial Dr., Suite D 25,126 sq. ft.	Yes #30927
2014	Sterigenics	Industrial	2971 Industrial Dr. Chamber – Sterilization unit No Letter of comple	
2014	Sterigenics	Industrial	2971 Olympic Dr. Restrooms	No Letter of completion
2015	Sterigenics	Industrial	Chamber and preconditioning No Letter of completic	
2019	Sterigenics		Upgrades to Emissions Control/Scrubber	•

Example of Certificate of Occupancy

	Cobb County Building and Fire Certificate of Occup	NO. 30927
DISTRICT 17 LAND LO	OT899BUILDING PERMIT NUMBER	0705839 CB
NAME OF BUILDING OR SPACE	REVEST BLOG T: STERIGENICS	namer 7
LOCATION 2971 0L	YMPIC INDUSTRIAL DR SUITE D	
OCCUPANCY STORAGE	OCCUPANT LOAD LIMITATION 25	BUILDING CODE 18C 200
TYPE CONSTRUCTION	NUMBER OF STORIES	FLOOR AREA 25,126 S
COMMENTS		
substantial compliance with app any ordinance of Cobb County. This Certificate of Occupancy of standards required by Georgia Si Cobb County Fire Prevention Co internal or external features of th	ne best of the County's knowledge and belief at the time of iss licable county codes. No oversight by the office of the Build ertifies the facility listed hereon to the best of the County's k afety Fire Laws as enforced by the County Governing Autho de on the date issued. The Certificate of Occupancy shall run for the building are not materially altered, the type of occupancy reher hazard, discovered, or unless voided by any future law.	ing Inspector shall excuse violation of nowledge complies with the minimum rity and the 101 Life Safety Code and for the life of the building, provided the

DESCRIPTION OF STERILIZATION OPERATIONS

The facility is a commercial contract sterilization facility that utilizes ethylene oxide to sterilize customers' product. Ethylene oxide is a sterilant that regulatory agencies such as the U.S. Food and Drug Administration and U.S. Environmental Protection Agency (administering the Federal Insecticide, Fungicide, and Rodenticide Act) allow to be used on products. In addition, medical devices must meet a certain level of sterility as regulated by the U.S. Food and Drug Administration and other regulatory agencies.

When ethylene oxide (EO) is used for medical device sterilization, the medical devices must have a specifically defined sterilization process, which is validated for a specific sterilization chamber(s). This facility uses ten sterilization chambers ranging in capacity from six to thirty pallets. While all ten sterilization chambers are similar in design, each chamber may only process products approved for that chamber and cannot process other products that have not been validated and approved by the appropriate regulatory agency for that specific chamber. As a contract sterilization facility, the facility sterilizes many different products from many different customers and each product has specific requirements which specify details of the sterilization process to be followed.

[Reference September 11, 2019 letter from Pond to Nicolas Dawe and Kevin Gobble]

Step 1 – Receiving

Customers ship packaged products to the *Sterigenics* facility on trucks. The products are offloaded and temporarily stored until the facility begins the sterilization process. The products are not repackaged or changed during the sterilization process.

<u>Step 2 – Preconditioning</u>

The next step after receipt of the product is to place the product into a preconditioning room. Preconditioning rooms are enclosed rooms which are heated and maintained at high humidity to prepare the product for sterilization. Each product is held in the preconditioning room for the time required for the specific product. No ethylene oxide is introduced or present in this step of the

process. Once preconditioning is complete, the product is moved to the appropriate sterilization chamber.

Step 3 – Chamber Operation, Vacuum Pump Emissions

Once the product is loaded into the chamber, the chamber is closed and sealed. At the beginning of each sterilization cycle, safety checks are performed to ensure ethylene oxide does not escape from the chamber during the cycle. In addition, the cycle is monitored to ensure that vacuum is maintained within acceptable parameters. There is a validated cycle for the chamber that is product specific. The sterilization process begins with evacuating the air from the chamber and introducing nitrogen. While under negative pressure inside the chamber, ethylene oxide is introduced into the sterilization chamber to sterilize the product. Once ethylene oxide is introduced, the dwell stage can last from thirty minutes to several hours depending on the product. Once complete, the sterilization chamber vacuum pumps remove most of the ethylene oxide from the chamber by exhausting and purging with nitrogen multiple times. Vacuum pump emissions are routed to the *Ceilcote* wet acid scrubber.

<u>Step 4 – Backvents and Aeration Emissions</u>

Once the sterilization chamber process is complete and the chamber door is partially opened, a back-vent fan activates to extract residual amounts of ethylene oxide from the chamber. This fan remains on while the chamber door is open. After fifteen minutes, the pallets of product are removed from the sterilization chamber and placed into aeration rooms to further off-gas residual EO. Both the back vents and aeration rooms are ducted to an AAT scrubber system and treated with dry bed reactors. After the products have completed the sterilization and aeration process, they are loaded onto trucks and shipped back to the customers. The *Sterigenics* policy is to transport processed product from the chamber to the aeration room without delay or pallet staging.

EMISSIONS CONTROL SYSTEM – SCRUBBER – VENTILATION – HVAC

The current project addresses improvements to the emission control measures at the *Sterigenics* facility. The intention is to further reduce the ethylene oxide emissions and includes several modifications to the scrubbing process. The existing vacuum pump wet scrubber (EC3) is being

tied in series with the larger existing aeration room scrubber (EC2); this "double scrubs" the air that comes from the sterilization chambers. The second wet scrubber treats exhausted air from the first wet scrubber along with exhausted air from the aeration rooms. The exhaust is then passed through dry beds for a third treatment. Dry beds are a chemical absorption process where the air being scrubbed passes through a layer of granular media. When the air stream passes through the media, a chemical absorption occurs that results in the captured ethylene oxide being rendered inert.

[Reference September 11, 2019 letter from Pond to Nicolas Dawe and Kevin Gobble]

MONITORING AND LEVELS

A monitoring system to detect the presence of EO vapors is installed throughout the *Sterigenics* facility. These systems include monitors for LEL (lower explosive limits) and for GC. The levels are reflected visually throughout the facility as follows:

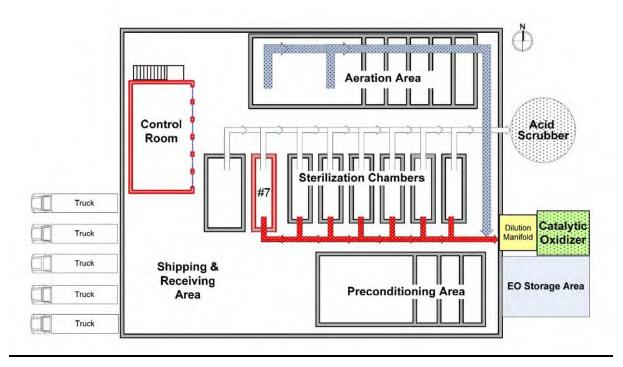
	1.	LIGHT LEGENI	D	
COLOR	ASL	ASL HORN	SRI LEVEL	LEL LEVEL
DED	FLASHING — ALL	CONSTANT - ALL	N/A	≥ 25%
RED	SOLID — ALL	INTERMITTENT - ALL	≥50 ppm	≥ 10%
VELLOW	FLASHING — LOCAL	WHEN THRESHOLD IS EXCEEDED: SLOW INTERMITTENT	≥5 ppm	N/A
YELLOW	SOLID - LOCAL		≥3 ppm	N/A
GREEN	FLASHING — LOCAL	LOCAL FOR 1 MIN	≥1 ppm	N/A
	SOLID - LOCAL	SILENT	NONE DETECTED	N/A

INCIDENT AT ONTARIO, CALIFORNIA FACILITY

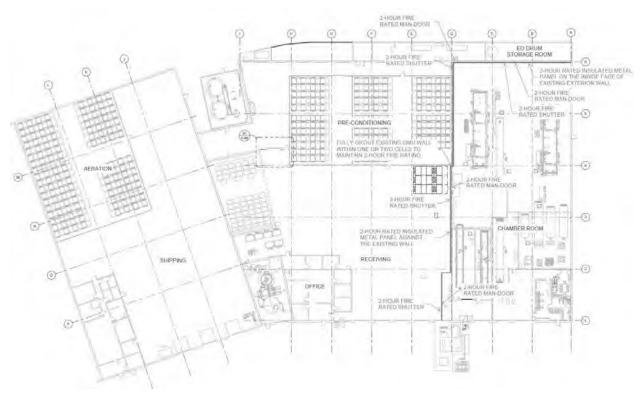
Reference: U.S. CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD INVESTIGATION REPORT 2004-11-1-CA

On August 19, 2004, an explosion occurred at the *Sterigenics* International, Inc., ethylene oxide (EO) sterilization facility in Ontario, California.

The U.S. Chemical Safety and Hazard Investigation Board (CSB) determined that maintenance personnel overrode safety devices and EO flowed through the ventilation system from a sterilizer to an open-flame catalytic oxidizer (oxidizer) where it ignited. The flame traveled back to the sterilizing chamber through the ventilation system duct and ignited a large volume of EO in the chamber. According to information provided by Sterigenics, the recommendations of the Chemical Safety Board have been applied to the Atlanta facility. While the Atlanta and Ontario facilities utilize the same sterilization process and are very close in overall square footage, there is a significant difference in the layout of the two facilities. The Atlanta facility provides very distinct separation between the pre-conditioning, sterilization chamber, and aeration rooms. In the Ontario facility, separation is only provided for the pre-conditioning and aeration rooms. Additionally, the open-flame catalytic oxidizer is not used in the Atlanta facility. According to the information obtained from Ontario FM, the Ontario facility is classified as an H-1 occupancy. An alternative materials, design, methods of construction and equipment approach was used in Ontario facility as it exceeds the allowable area for an H-1 occupancy. This alternative approach was the inclusion of safety controls related to the use of the EO. This information was obtained from Deputy Chief/Fire Marshal Paul Ehrman and Deputy Fire Marshal Michelle Starkey – Ontario Fire Department.



ONTARIO PLANT LAYOUT TAKEN FROM THE PUBLIC REPORT BY THE CSB.



ATLANTA PLANT LAYOUT – PLANS AS PART OF PUBLIC RECORD OF COBB COUNTY

Q-Dot Engineering, LLC

Exhibit 42

From: Patsy Warnick <patsy@qdotengineering.com>

Sent: Monday, March 23, 2020 6:24 PM

To: Massey, Clay; Fred Bentley

Cc: Chad Walker

Subject: Report

Attachments: Sterigenics - Report II.pdf

EXTERNAL SENDER – Proceed with caution

Good evening gentlemen,

Please see the attached report. Feel free to contact me with any questions or concerns and I will get back to you as soon as possible.

Regards,

PATSY WARNICK, PE, CSP PARTNER

Q-DOT ENGINEERING, LLC CELL 240.328.9833

Building and Fire Code Review and Analysis Report – II

STERIGENICS 2971 OLYMPIC INDUSTRIAL DRIVE ATLANTA, GEORGIA 30339

PATSY WARNICK, PE, CSP Q-DOT ENGINEERING, LLC FEBRUARY 17, 2020 Report II March 2020

SCOPE AND PURPOSE

The purpose of this report is to further review and evaluate the *Sterigenics*' facility with regard to applicable Building and Fire codes following:

- a site visit and walk-through of the sterilization process (simulated, no product sterilization);
- an on-site meeting with representatives from *Sterigenics*, Cobb County Building Department, Cobb County Fire Marshal, *Pond*, and *Q-Dot Engineering*;
- a review of Chapter 14 of NFPA 55, 2018 edition; and
- a review of the 2018 editions of the International Building Code (IBC) and
 International Fire Code (2018) as adopted and amended by the State of Georgia.

The report intends to provide:

- a revised Maximum Allowable Quantity (MAQ) of Ethylene Oxide (EO) for the facility;
- clarity on aspects contained in the initial report titled Building and Fire Code
 Review Analysis and dated December 20, 2019 prepared by Patsy Warnick,
 CSP, PE, and James Munger, Ph.D., as requested by stakeholders during the
 on-site meeting; and
- review and recommendation for approval of the facility's Hazardous Materials
 Management Plan (HMMP).

MAXIMUM ALLOWABLE QUANTITY (MAQ)

The 2016 edition of NFPA 55 Chapter 14 Storage, Handling and Use of Ethylene Oxide for Sterilization and Fumigation, allows expanded provisions for EO storage inside a building beyond the general MAQ limitations contained in the IBC and IFC. For buildings using and storing EO as part of a sterilization process, section 14.3.2.1.1 allows a total of 10,000 pounds of material to be stored inside the sterilization building. Numerous requirements of Chapter 14 are outlined in the following tables.

Report II March 2020

Section	Requirement	Area	Compliant?
14.3.2.1.4	Heated indoor storage areas kept to less	None	n/a
	than 125F		
14.5.1.2,	Dispensing areas equipped with gas	Chamber room area	Yes
14.6.3	detection		
14.5.1.3	Exhaust ventilation installed in dispensing	Chamber room area	Yes
	areas		
14.5.2.1	Single container connection for use	Per chamber	Yes
14.5.2.2	Grounding of containers	Per chamber	Yes
14.5.2.3	Reverse flow protection	Per chamber	Yes
14.5.2.4,	Shut-off valves, local and remote	Per chamber	Yes
14.6.4			
14.5.2.5	Pressure relief valves	Per container (per	Yes
		chamber)	
14.5.3	Nitrogen for purging of chambers	Per chamber	Yes
14.5.4	Vaporizer – liquid control valve	Per chamber	Yes
14.5.4.2	Temperature indicator and alarm (60F-	Per chamber	Yes
	120F)		
14.6.1	Operating procedures manual	Overall facility	Yes
14.6.2	Purging and post-cycle ventilation	Of each chamber in	Yes
		chamber room area	
14.6.2.3	Manually initiated cycle abort feature	Per chamber	Yes

DISCUSSION

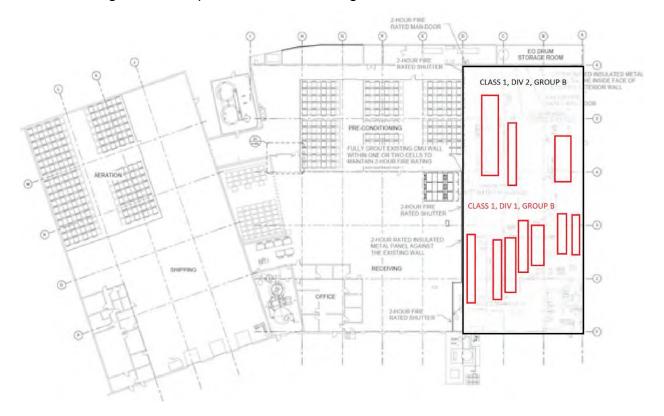
The emphasis of the above sections is to minimize risk by reducing the potential for EO to be present in the building. The Chapter requires that the sterilization areas be monitored to indicate both audibly and visually if the area reaches an ambient concentration of EO that is within 25% of its lower explosive limits (LEL). The code has indicated that this 25% threshold is 7500 ppm. [55:14.4.1.2] The facility currently has supervisory monitoring in place to indicate when concentrations surpass 5 ppm, and an alarm to activate when concentrations exceed 50 ppm. These quantities are well below

the threshold as required by the code and serve as supplemental preventative measures taken by the facility to ensure no EO leakage is occurring during sterilization.

The sterilization process occurs in a closed system as required by the code. Each chamber is purged with high purity nitrogen gas and post-cycle ventilated. [55:14.6.2.1,2] Additionally, ambient air from the chamber room area is mechanically exhausted to prevent re-entry into the facility. These processes are critical to preventing the presence of EO in the facility and *Sterigenics* is compliant with the listed requirements in the table above.

ELECTRICAL AREA CLASSIFICATIONS

As required by section 14.7.1 of NFPA 55, the chamber room area is required to be Class I, Division 2, Group B; the individual chambers are required to be Class 1, Division 1, Group B; and the remainder of the facility including the aeration room can be unclassified. The aeration room is not required to be classified because it remains below flammable levels of EO at all times. [55:14.7.1.1.1] This is verified and monitored by the EO detection and alarm system present throughout the facility. All piping and equipment in the facility needs to be grounded to prevent static discharge.



BUILDING CONSTRUCTION 14.11.2.1

Section	Description	Area	Compliant?
14.11.2.1	Single story, non-combustible	Chamber room area	Yes
14.11.2.1.1	Heavy construction	Chamber room area	Yes
14.11.2.1.3	Solid floor at grade	Chamber room area	Yes
14.11.2.2	General ventilation	Chamber room area	Yes
14.11.2.4	Protection Level 2	Each chamber	Yes
14.11.2.5	Explosion control venting	Chamber room area	Yes
14.12	Automatic Sprinkler System	All facility	Yes
14.12.1.1	Deluge system for EO storage area	None	Yes

DISCUSSION

All components of the building are compliant with the above noted sections of code. For clarity, section 14.11.2.1.1, which applies to the chamber room area, requires that the structure exterior walls, ceilings, and roofs be either of lightweight construction design for explosion venting, or of heavy construction such as solid brick masonry, concrete block, or reinforced concrete provided there are venting panels in the walls or roof. The chamber room area walls are constructed of a concrete masonry assembly of 7 5/8-inch thickness, equating to a 2-hour fire-resistive rating. [National Concrete Masonry Association, TEK07-01C] The roof over this area is lightweight metal sheeting over trusses with a drop panel ceiling. In my professional opinion, once the door openings in the chamber room area leading to the EO storage area and the shipping area are protected with a 90-minute fire resistive rated assembly, this structure meets the requirements of 14.11.2.1.1.

OUTSIDE STORAGE

Section	Description	Area	Compliant?
14.3.3.1	Comply with 7.10.2	EO storage area	Yes
14.3.3.2.1	25% Open to the outside	EO storage area	Yes
14.3.3.2.2	Full height enclosure	EO storage area	Yes
14.3.3.2.3	15' Clearance to vegetation/combustibles	EO storage area	Yes
14.3.3.2.4	Cylinders not placed on ground/earth	EO storage area	Yes
14.3.3.2.5	Protected from vehicles	EO storage area	Yes
14.11.2.5	Covered by canopy	EO storage area	Yes

DISCUSSION

The first section of the Outdoor Storage requirements in Chapter 14 of NFPA 55 refers the user to Chapter 7. In section 7.10.2, the storage of unstable reactive materials is required to be located at least 75 feet of other buildings, lot lines, or public ways. The next section allows the user to substitute a 2-hour fire barrier without penetrations in lieu of the 75-foot physical separation between spaces. The code further allows the 2-hour barrier to be an exterior wall of an adjacent building or structure. [55:7.10.2.2.2] The facility meets this provision of code with one exception: the current barrier contains an opening to allow passage from the outside storage room to the chamber room area.

Given the nature of the facility, full compliance with the all the provisions of any current prescriptive codes is not practical. The ability of the facility to comply with prescriptive code will be discussed in a separate section of this report. However, because the facility meets the vast majority of the requirements, this warrants a reasonable allowance towards of the 10,000-pound limitation permitted by section 14.3.2.1.1.

For the chamber room area where EO is in use, the *Sterigenics'* sterilization process utilizes 10 drums of EO containing approximately 400 pounds of liquid material per container. It is the opinion of *Q-Dot Engineering* that the facility meets the intent of the code expressed by Chapter 14 of NFPA 55 and it is reasonably safe to continue to use 4,000 pounds (10 drums) of EO for sterilization in the chamber room area. This quantity

is well below the code limitations and sufficient operational components are in place to mitigate the hazard as intended by the code.

Regarding the exterior storage area adjacent to the sterilization chamber room area: similar to the building interior, this area meets the majority of prescriptive code as required by section 14.3.3 of NFPA 55. Additionally, this area is protected by an automatic deluge suppression system. This fire protection system for an outdoor storage area is an added compensatory measure, as it is intended to protect areas of buildings used to store EO. This storage area is on the building exterior and when considered with the prescriptive measures, exceeds the intent of the code. It is the opinion of *Q-Dot Engineering* that it is reasonably safe to store 8,000 pounds (20 drums) of EO in this area. It is highly recommended that the current doorway in the 2-hour fire resistive rated exterior wall be replaced with a 90-minute rated opening that has an automatic closing feature.

PRESCRIPTIVE COMPLIANCE

It is the desire of the stakeholders to clarify and re-issue the Certificate of Occupancy for the *Sterigenics*' facility. Over the years, applications to the County AHJ have been made and approved for additions and alterations of the interior space which has resulted in several partial Certificates of Occupancy for the facility. During a recent permit application, County officials identified the storage and processing of hazardous material at the *Sterigenics*' facility, and, through *Q-Dot Engineering* have requested a code compliance analysis of the facility focused primarily on its use and storage of EO.

Q-Dot Engineering agrees that a unified Certificate of Occupancy for the facility is appropriate. The certificate should reflect the chamber room area as H-1 and the remainder of the facility as S-2 in accordance with the 2018 International Building Code use and occupancy classifications.

Since the facility has taken adequate measures to mitigate the risks presented by storing and handling EO, issuing the new certificate of occupancy to reflect the existing facility's operations should be an administrative matter.

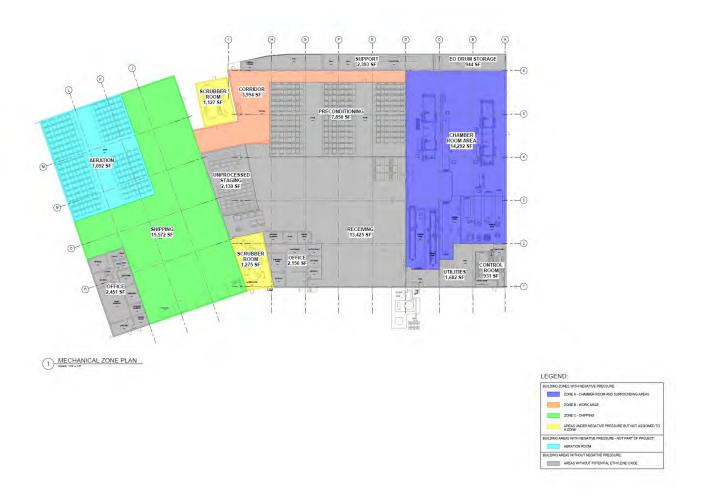
A formal "change of use" process is reserved for buildings or spaces that are altering the physical space, the use of the existing space, or the changing the hazard(s) present in the space. At the *Sterigenics* facility, none of these changes are taking place. It is

acknowledged that once a hazard has been identified, the building owner is responsible for mitigating that hazard. The authority having jurisdiction is not permitted to retroactively enforce currently adopted codes and regulations onto existing, approved buildings that are not changing the space, use, or hazard. Imposing current standards on existing buildings creates undue hardships beyond the physical and structural impracticalities of applying current codes to buildings that were constructed decades ago. As seen with *Sterigenics*, the process can create severe structural and financial hardships as well as an impact on societal needs.

Additionally, when prescriptive code cannot be met due to undue hardship or practical infeasibility due to the existing nature of the building, the applicant is permitted to request a code modification of the building official. [IBC 104.10] In this process, additional or alternative safety measures are accepted in lieu of the prescriptive measure. For *Sterigenics*, the facility has provided multiple safety measures beyond the minimum requirements including EO monitoring beyond the area of use, pressurization of areas where fugitive EO emissions could exist, and a deluge sprinkler system in the outdoor EO storage area.

MECHANICAL SYSTEMS

As part of a recent emissions control project, the facility has installed a new mechanical system to pressurize portions of the building. This pressurization system helps capture any potential fugitive emissions by *pulling* them into the building's EO exhaust system from any areas that have exposure to products of the sterilization process. The system was designed based on the requirements of the approved EPD testing protocol and the system plans are reviewed and approved by Cobb County. The pressurized areas can be seen on the diagram below.



HAZARDOUS MATERIALS MANAGEMENT PLAN (HMMP)

Q-Dot Engineering was provided a HMMP internal memorandum written by the facility Director, Kevin Wagner, for review. The facility HMMP contains information regarding internal procedures, hazardous materials inventory, employee training, site plan, building floor plans, materials handling, materials separation, compatibility and storage, inspection and monitoring, and emergency response procedures. The plan is comprehensive and appropriate for the facility. *Q-Dot Engineering* recommends approval of the HMMP by the authority having jurisdiction.

EMERGENCY POWER

Q-Dot Engineering received documentation from *Sterigenics* (Dave De Fina, VP Global Engineering) detailing the fail-safe features of the equipment at the facility. The document

indicates that all process control systems, chambers, and related EO equipment are engineered fail-safe such that in the event of power loss, all equipment will "fail" in such a way to prevent the unintended release of EO. Additionally, sudden power restoration may provide an unexpected source of ignition or other un-mitigated risk to the facility and its occupants. For these reasons, emergency power is not required for the facility and *Q-Dot Engineering* advises against its installation.

TIME FRAMES

The following is requested by Sterigenics and recommended by Q-Dot Engineering:

- That the County promptly perform and complete its inspection of the emissions control system work at the facility and issue the necessary approvals so the system may be returned to service.
- 2. Upon final approval of the emissions control systems, Sterigenics be permitted to recommence normal sterilization operations using ethylene oxide at the facility for the purpose of testing the emissions control system pursuant to the EPD Consent Order, in accordance with the testing protocol the EPD has approved. Sterigenics must be allowed to operate the facility for this purpose for the length of time necessary to complete the testing pursuant to the EPD-approved protocol.
 - a. Within 20 days of beginning operations at the facility to test the emissions control modifications in accordance with the EPD-approved protocol, *Sterigenics* must submit permit drawings and a building permit application to the County for the facility modifications recommended in the report Upon receipt of those permit plans and the permit application, the County must review the plans and issue a building permit for the modifications as soon as practicable during the period when the facility is operated for EPD testing purposes. Along with a building permit for the modifications, the County should issue a temporary certificate of occupancy for the facility in accordance with 2018 IBC Section 111.3 enabling *Sterigenics* to occupy the facility for its sterilization operations while the modifications are completed. *Sterigenics* will practice safe operations to ensure ignition

control in any areas requiring work, including a fire watch if deemed necessary by Cobb County officials. *Sterigenics* and the County must work together in good faith for the building permit and temporary certificate of occupancy to issue without unnecessary delay, and *Sterigenics* must be allowed to continue its normal sterilization operations using ethylene oxide at the facility while its building permit application and the issuance of a temporary certificate of occupancy are pending with the County. Due to the COVID-19 pandemic, *Sterigenics* requests that the temporary certificate of occupancy be issued for the maximum allowable time period.

b. Upon Sterigenics' completion of the facility modifications recommended in Q-Dot's report, the County should complete its inspection of the modifications and issue the facility a new full Certificate of Occupancy for the entire space of Sterigenics' facility, identifying the occupancy classifications for each area of the facility under the 2018 IBC as indicated in this report.

CONCLUSION

It is the professional opinion of *Qdot Engineering, LLC* that this review and analyses are consistent with nationally recognized good practices of fire protection engineering, and guides the Cobb County Officials towards approving the *Sterigenics* facility for recommencement of operations at a reasonable level of life safety and property protection for the hazards of fire, explosion, or other dangerous conditions. During this unusual time of uncertainty, it is extremely necessary for facilities such as these to be in full operation to meet the needs of society as demand for sterilized products is at an all-time high. The code intends for new facilities to meet the minimum safety provisions set forth in fire and building construction standards; this existing facility nearly meets such requirements and has taken all steps practicable to mitigate recognized hazards presented by the materials used and stored at the facility.



Patsy Warnick, PE, CSP

Exhibit 43

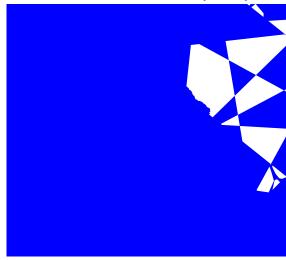
Georgia Department of Public Health COVID-19 Daily Status Report



Georgia Department of Public Health COVID-19 Daily Status Report For: 03/29/2020

These data represent confirmed cases of COVID-19 reported to the Georgia Department of Public Health as of 03/29/2020 11:28:03. A confirmed case is defined as a person who has tested positive for 2019 novel coronavirus.







Count of COVID-19 Confirmed Cases *Based on patient county of residence when known

0 1 - 81 82 - 162 163 - 243 244 - 324 325 - 407

COVID-19 Confirmed Cases:	No. Cases (%)
Total	2651 (100%)
Hospitalized	666(25.12%)
Deaths	80 (3.02%)

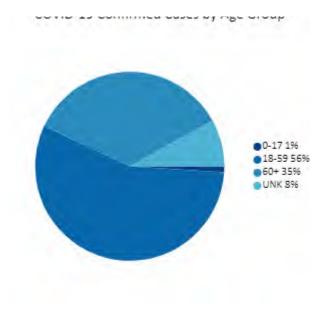
COVID-19 Confirmed Cases By County:	No. Cases	No. Deaths
Fulton	407	12
Dekalb	272	3
Dougherty	239	17
Cobb	222	9
Gwinnett	143	1
Bartow	119	1
Carroll	64	0
Clayton	59	1
Cherokee	56	1
Henry	55	1
Lee	43	6
Douglas	37	1
Clarke	35	2
Hall	32	0
Floyd	27	2
Fayette	26	3
Forsyth	25	1
Paulding	23	0
Coweta	22	2
Lowndes	20	1
Rockdale	18	1
Newton	17	0
Early	16	1
Chatham	15	0
Houston	15	1
Mitchell	15	0
Sumter	15	1
Gordon	14	1
Bibb	13	0

Tift	13	0
Columbia	12	0
Richmond	12	0
Spalding	12	0
Oconee	11	0
Polk	10	0
Terrell	10	2
Worth	10	1
Laurens	9	0
Troup	9	1
Coffee	8	0
Glynn	8	0
Muscogee	8	0
Whitfield	8	0
Barrow	7	1
Bryan	7	0
Thomas	7	0
Colquitt	6	0
Crisp	6	0
Peach	6	1
Butts	5	0
Meriwether	5	0
Pickens	5	1
Upson	5	0
Walton	5	0
Ware	5	0
Burke	4	0
Decatur	4	0
Effingham	4	0
Lumpkin	4	0
Miller	4	0
Calhoun	3	0
Catoosa	3	0
Fannin	3	0
Irwin	3	0
Liberty	3	0
Lincoln	3	0
Madison	3	0
Monroe	3	0
Murray	3	0
Pulaski	3	0
Randolph	3	0
Seminole	3	0
Stephens	3	0
Baldwin	2	0
Ben Hill	2	0
Camden	2	0
	^	^

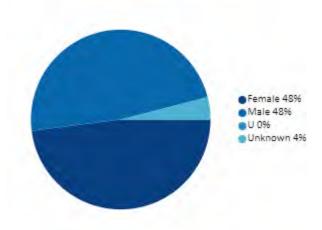
⊔awson	_	Įυ	
Franklin	2	0	
Haralson	2	0	
Harris	2	0	
Jackson	2	0	
Jasper	2	0	
Jones	2	0	
Lamar	2	0	
Pierce	2	0	
Pike	2	0	
Tattnall	2	0	
Turner	2	0	
Twiggs	2	0	
Washington	2	0	
Bacon	1	0	
Baker	1	1	
Brooks	1	0	
Bulloch	1	0	
Candler	1	0	
Charlton	1	0	
Chattahoochee	1	0	
Chattooga	1	0	
Clinch	1	0	
Dodge	1	0	
Greene	1	0	
Hart	1	0	
Heard	1	1	
Jenkins	1	0	
Long	1	0	
Macon	1	0	
Mcduffie	1	0	
Morgan	1	0	
Taylor	1	0	
Toombs	1	0	
Wheeler	1	0	
White	1	0	
Wilkes	1	0	
Unknown	262	2	
*Based on patient county of residence when known			

COVID-19 Testing By Lab Type:		Total Tests
Commercial Lab	2360	10669
Gphl	291	1895

COVID-19 Confirmed Cases by Age Group



COVID-19 Confirmed Cases by Sex



COVID-19 Deaths in Georgia

Age	Gender	County	Underlying
			, ,
95	Male	BAKER	Unk
66	Male	BARROW	Yes
69	Male	BARTOW	Yes
67	Female	CHEROKEE	Yes
60	Male	CLARKE	Yes
78	Female	CLARKE	Unk
47	Male	CLAYTON	Yes
68	Male	COBB	Yes
56	Male	COBB	No
	Male	COBB	Unk
77	Male	COBB	Yes
67	Male	COBB	Yes

	····-	ı -	1 ·
67	Female	COBB	Yes
85	Female	COBB	Yes
82	Male	COBB	Yes
67	Male	COBB	No
42	Female	COWETA	Yes
77	Male	COWETA	Yes
65	Female	DEKALB	Yes
31	Male	DEKALB	Yes
91	Female	DEKALB	Unk
61	Female	DOUGHERTY	Yes
65	Male	DOUGHERTY	Yes
45	Female	DOUGHERTY	Yes
69	Female	DOUGHERTY	Yes
42	Female	DOUGHERTY	Yes
66	Female	DOUGHERTY	Yes
43	Female	DOUGHERTY	Yes
79	Male	DOUGHERTY	Yes
67	Female	DOUGHERTY	Unk
78	Male	DOUGHERTY	Unk
87	Female	DOUGHERTY	Unk
	Female	DOUGHERTY	Unk
77	Male	DOUGHERTY	Unk
84	Male	DOUGHERTY	Unk
66	Female	DOUGHERTY	Yes
92	Female	DOUGHERTY	Unk
	Male	DOUGHERTY	Unk
66	Male	DOUGLAS	No
48	Female	EARLY	Yes
79	Male	FAYETTE	Yes
77	Female	FAYETTE	Yes
83	Male	FAYETTE	Yes
75	Male	FLOYD	Yes
65	Female	FLOYD	Yes
87	Male	FORSYTH	Unk
70	Female	FULTON	Yes
66	Female	FULTON	Unk
68	Female	FULTON	Yes
58	Male	FULTON	Yes
62	Male	FULTON	Yes
68	Male	FULTON	Yes
81	Male	FULTON	Yes
63	Male	FULTON	Yes
33	Male	FULTON	Unk
70	Female	FULTON	Yes
85	Male	FULTON	Unk
90	Female	FULTON	Unk
78	Male	GORDON	Yes
78	Male	GORDON	Yes

85	Female	GWINNETT	Yes
76	Female	HEARD	Unk
80	Male	HENRY	Yes
64	Male	HOUSTON	Yes
49	Male	LEE	Yes
54	Male	LEE	Yes
64	Female	LEE	Yes
58	Male	LEE	Yes
55	Female	LEE	Yes
68	Female	LEE	Yes
66	Male	LOWNDES	Yes
29	Female	PEACH	Unk
76	Female	PICKENS	Yes
57	Female	ROCKDALE	Yes
73	Male	SUMTER	Yes
75	Male	TERRELL	Yes
73	Female	TERRELL	Unk
61	Female	TROUP	Yes

Exhibit 44



PROCLAMATIONS

Proclamation on Declaring a National Emergency Concerning the Novel Coronavirus Disease (COVID-19) Outbreak

Issued on: March 13, 2020



In December 2019, a novel (new) coronavirus known as SARS-CoV-2 ("the virus") was first detected in Wuhan, Hubei Province, People's Republic of China, causing outbreaks of the coronavirus disease COVID-19 that has now spread globally. The Secretary of Health and Human Services (HHS) declared a public health emergency on January 31, 2020, under section 319 of the Public Health Service Act (42 U.S.C. 247d), in response to COVID-19. I have taken sweeping action to control the spread of the virus in the United States, including by suspending entry of foreign nationals seeking entry who had been physically present within the prior 14 days in certain jurisdictions where COVID-19 outbreaks have occurred, including the People's Republic of China, the Islamic Republic of Iran, and the Schengen Area of Europe. The Federal Government, along with State and local governments, has taken preventive and proactive measures to slow the spread of the virus and treat those affected, including by instituting Federal quarantines for individuals evacuated from foreign nations, issuing a declaration pursuant to section 319F-3 of the Public Health Service Act (42 U.S.C. 247d-6d), and releasing policies to accelerate the acquisition of personal protective equipment and streamline bringing new diagnostic capabilities to laboratories. On March 11, 2020, the World Health Organization announced that the COVID-19 outbreak can be characterized as a pandemic, as the rates of infection continue to rise in many locations around the world and across the United States.

The spread of COVID-19 within our Nation's communities threatens to strain our Nation's healthcare systems. As of March 12, 2020, 1,645 people from 47 States have been infected with the virus that

causes COVID-19. It is incumbent on hospitals and medical facilities throughout the country to assess their preparedness posture and be prepared to surge capacity and capability. Additional measures, however, are needed to successfully contain and combat the virus in the United States.

NOW, THEREFORE, I, DONALD J. TRUMP, President of the United States, by the authority vested in me by the Constitution and the laws of the United States of America, including sections 201 and 301 of the National Emergencies Act (50 U.S.C. 1601 *et seq.*) and consistent with section 1135 of the Social Security Act (SSA), as amended (42 U.S.C. 1320b-5), do hereby find and proclaim that the COVID-19 outbreak in the United States constitutes a national emergency, beginning March 1, 2020. Pursuant to this declaration, I direct as follows:

Section 1. Emergency Authority. The Secretary of HHS may exercise the authority under section 1135 of the SSA to temporarily waive or modify certain requirements of the Medicare, Medicaid, and State Children's Health Insurance programs and of the Health Insurance Portability and Accountability Act Privacy Rule throughout the duration of the public health emergency declared in response to the COVID-19 outbreak.

- <u>Sec. 2. Certification and Notice</u>. In exercising this authority, the Secretary of HHS shall provide certification and advance written notice to the Congress as required by section 1135(d) of the SSA (42 U.S.C. 1320b-5(d)).
- <u>Sec. 3. General Provisions.</u> (a) Nothing in this proclamation shall be construed to impair or otherwise affect:
- (i) the authority granted by law to an executive department or agency, or the head thereof; or
- (ii) the functions of the Director of the Office of Management and Budget relating to budgetary, administrative, or legislative proposals.
- (b) This proclamation shall be implemented consistent with applicable law and subject to the availability of appropriations.
- (c) This proclamation is not intended to, and does not, create any right or benefit, substantive or procedural, enforceable at law or in equity by any party against the United States, its departments, agencies, or entities, its officers, employees, or agents, or any other person.

IN WITNESS WHEREOF, I have hereunto set my hand this thirteenth day of March, in the year of our Lord two thousand twenty, and of the Independence of the United States of America the two hundred and forty-fourth.

DONALD J. TRUMP

Exhibit 45



THE STATE OF GEORGIA

EXECUTIVE ORDER

BY THE GOVERNOR:

DECLARATION OF PUBLIC HEALTH STATE OF EMERGENCY

WHEREAS:

In late 2019, a new and significant outbreak of respiratory disease

caused by a novel coronavirus emerged in Wuhan, China; and

WHEREAS:

The respiratory disease caused by the novel coronavirus, known as

"COVID-19," is an infectious virus that can spread from person-to-

person and can result in serious illness or death; and

WHEREAS:

On March 13, 2020, President Donald Trump declared the outbreak

of COVID-19 a national emergency; and

WHEREAS:

The Centers for Disease Control and Prevention has identified the potential public health threat posed by COVID-19 both globally and in the United States, and has advised that the person-to-person spread of COVID-19 will continue to occur globally, including within

the United States; and

WHEREAS:

The Centers for Disease Control and Prevention has noted that COVID-19 is proliferating via "community spread," meaning people have contracted the virus in areas of Georgia as a result of direct or indirect contact with infected persons, including some who are not

sure how or where they became infected; and

WHEREAS:

Laboratory testing has confirmed more than sixty cases of COVID-19

in Georgia; and

WHEREAS:

In consultation with the Commissioner of Public Health, the Georgia Coronavirus Task Force, and other state health and emergency preparedness officials, I have determined a public health emergency exists, and that it is necessary and appropriate to take action to protect the health, safety, and welfare of Georgia's residents and visitors to ensure COVID-19 remains controlled throughout this

State, as provided by Code Section 38-3-51; and

WHEREAS:

The uninterrupted supply of medical goods and other emergency related materials, supplies, goods, and services during this emergency is an essential need of the public and any perceived or actual shortage threatens public welfare; and

WHEREAS: The Federal Motor Carrier Safety Regulations, 49 C.F.R. §§ 390 et

seq., prescribes limits on the hours of service for operators of commercial vehicles, and federal law, 23 U.S.C. § 127, sets forth certain weight limitations for vehicles on interstate highways; and

WHEREAS: 49 C.F.R. § 390.23 allows the Governor of a state to suspend these

rules and regulations for commercial vehicles responding to an emergency for up to thirty (30) days, if the Governor determines an

emergency condition exists.

Now, therefore, pursuant to Code Section 38-3-51, and the authority vested in me as Governor of the State of

GEORGIA, IT IS HEREBY

ORDERED: That a Public Health State of Emergency exists in the State of Georgia

due to the public health emergency from the spread of COVID-19.

IT IS FURTHER

Ordered: That all resources of the State of Georgia shall be made available to

assist in activities designed to address this emergency, control the

spread of COVID-19, and aid recovery efforts.

IT IS FURTHER

ORDERED: That the Georgia Emergency Management and Homeland Security

Agency shall activate the Georgia Emergency Operations Plan

(GEOP) in response to this emergency.

IT IS FURTHER

Ordered: That the Georgia Department of Public Health, as the state agency

responsible for emergency management services under GEOP Emergency Support Function (ESF) 8 - Public Health and Medical Services, shall coordinate with the Center for Disease Control and Prevention for release of the Strategic National Stockpile as necessary and appropriate in response to this Public Health State of

Emergency.

IT IS FURTHER

Ordered: That the Georgia Emergency Management and Homeland Security

Agency is designated as the lead agency for responding to this public health emergency and shall coordinate all emergency response activities and other matters pertaining to this Public Health State of

Emergency.

IT IS FURTHER

ORDERED:

That acting pursuant to the Governor's authorization, the Georgia Department of Public Health shall coordinate with the Georgia Emergency Management and Homeland Security Agency to take any action necessary to protect the public's health, including, without limitation:

- (1) Planning and executing public health emergency assessments, mitigation, preparedness response, and recovery for the state;
- (2) Coordinating public health emergency responses between state and local authorities;
- (3) Establishing protocols to control the spread of COVID-19;
- (4) Coordinating recovery operations and mitigation initiatives;
- (5) Collaborating with appropriate federal government authorities, elected officials of other states, private organizations, or private sector companies;
- (6) Organizing public information activities regarding the state's public health emergency response operations, including educating the public on prevention of the spread of COVID-19 based on Centers for Disease Control and Prevention's guidelines and the best scientific evidence available;
- (7) Providing special identification for public health personnel involved in this Public Health State of Emergency;
- (8) For all persons meeting the Centers for Disease Control and Prevention's definition of a Person Under Investigation ("PUI"), implementing a program of active monitoring, which may include a risk assessment within twenty-four (24) hours of learning that the person meets the PUI criteria and twice-daily temperature checks for a period of at least fourteen (14) days or until the PUI tests negative for COVID-19; and
- (9) Implementing quarantine, isolation, and other necessary public health interventions consistent with Code Sections 31-12-4 and 38-3-51(i)(2) or as otherwise authorized by law.

IT IS FURTHER

ORDERED:

That all state and local authorities as well as public and private hospitals, healthcare facilities, clinics, and medical personnel shall fully comply with orders by the Governor as authorized by Georgia law, in furtherance of this Order.

IT IS FURTHER

ORDERED:

The Georgia Composite Medical Board is authorized to grant temporary licenses to physicians who apply for a temporary medical license and are currently licensed as a physician in good standing by equivalent boards in other states to assist with the needs of this public health emergency.

IT IS FURTHER

ORDERED:

The Georgia Board of Nursing is authorized to grant temporary licenses to nurses who apply for a temporary license and are currently licensed in good standing as an Advanced Practice Registered Nurse, Licensed Practical Nurse, or Registered Professional Nurse by an equivalent board in another state to assist with the needs of this public health emergency.

IT IS FURTHER

ORDERED:

That in accordance with 49 C.F.R. 390.23(a)(1)(i)(A), the federal rules and regulations limiting hours operators of commercial vehicles may drive are suspended to ensure that carrier crews are available as needed to provide emergency relief. This declared emergency justifies a suspension of Part 395 (driver's hours of service) of Title 49 of the Code of Federal Regulations. The suspension will remain in effect for thirty (30) days from the date of this Order or until the emergency condition ceases to exist, whichever is less.

IT IS FURTHER

ORDERED:

That no motor carrier operating under the terms of this emergency declaration will require or allow an ill or fatigued driver to operate a motor vehicle. A driver who notifies a motor vehicle carrier that he or she needs immediate rest will be given at least ten (10) consecutive hours off-duty before being required to return to service.

IT IS FURTHER

ORDERED:

That weight, height, and length for any such vehicle traveling through the State of Georgia for the purposes of providing disaster relief and/or preparation, which traverses roadways maintained by the State of Georgia, shall not exceed the following:

- (1) A maximum gross vehicle weight for vehicles equipped with five (5) weight bearing axles, with an outer bridge span of not less than fifty-one (51) feet, shall not exceed a gross vehicle weight of ninety-five (95) thousand pounds, a maximum width of ten (10) feet and an overall length of one hundred (100) feet. Continuous travel is authorized, with the proper escorts.
- (2) If the width of said vehicle exceeds eight (8) feet six (6) inches ad is traveling after daylight, defined as thirty (30) minutes before sunset to thirty (30) minutes after sunrise, the transporter is required to have a vehicle front and a rear escort/amber light when traveling on a two lane roadway and a vehicle rear escort when traveling on a four lane highway.

Transporters are responsible for ensuring they have proper oversize signs, markings, flags, and escorts as defined in the Georgia Department of Transportation Rules and Regulations.

IT IS FURTHER

ORDERED:

That commercial vehicles operating outside the normal weight, height, and length restrictions under the authority of this Executive Order shall be issued permits by the Georgia Department of Public Safety. Said vehicles shall be subject to any special conditions the Georgia Department of Public Safety may list on applicable permits. Nothing in this Executive Order shall be construed to allow any vehicle to exceed weight limits posted for bridges and like structures, nor shall anything in this Executive Order be construed to relieve compliance with restrictions other than those specified in this Executive Order or from any statute, rule, order or other legal requirement not specifically waived herein. Oversize permits may be issued by the Georgia Department of Public Safety, Motor Carrier Compliance Division, during normal business hours, Monday through Friday by calling 404-624-7700 or through the Georgia Permitting and Routing Optimization System online portal at https://gapros.dot.ga.gov/.

IT IS FURTHER

ORDERED:

That during preparation, response, and recovery activities for this Public Health Emergency, price gouging of goods and services necessary to support Public Health would be detrimental to the social and economic welfare of the citizens of this State, and thus Code Section 10-1-393.4, prohibiting price gouging, remains in effect.

IT IS FURTHER

ORDERED:

That pursuant to Code Section 38-3-51(a), the General Assembly shall convene for a special session, beginning on March 16, 2020, at 8:00 A.M. for the purpose of concurring with or terminating this Public Health State of Emergency.

IT IS FURTHER

ORDERED:

That the State of Emergency shall terminate on April 13, 2020, at 11:59 P.M., unless it is renewed by the Governor.

This 14th day of March 2020, at 10:15 A.M.



Exhibit 46

Federal Register

Vol. 85, No. 56

Monday, March 23, 2020

Presidential Documents

Title 3—

Executive Order 13909 of March 18, 2020

The President

Prioritizing and Allocating Health and Medical Resources to Respond to the Spread of COVID-19

By the authority vested in me as President by the Constitution and the laws of the United States of America, including the Defense Production Act of 1950, as amended (50 U.S.C. 4501 *et seq.*) (the "Act"), and section 301 of title 3, United States Code, it is hereby ordered as follows:

Section 1. Policy and Findings. On March 13, 2020, I declared a national emergency recognizing the threat that the novel (new) coronavirus known as SARS—CoV—2 poses to our national security. In recognizing the public health risk, I noted that on March 11, 2020, the World Health Organization announced that the outbreak of COVID—19 (the disease caused by SARS—CoV—2) can be characterized as a pandemic. I also noted that while the Federal Government, along with State and local governments, have taken preventive and proactive measures to slow the spread of the virus and to treat those affected, the spread of COVID—19 within our Nation's communities threatens to strain our Nation's healthcare system. To ensure that our healthcare system is able to surge capacity and capability to respond to the spread of COVID—19, it is critical that all health and medical resources needed to respond to the spread of COVID—19 are properly distributed to the Nation's healthcare system and others that need them most at this time.

Accordingly, I find that health and medical resources needed to respond to the spread of COVID-19, including personal protective equipment and ventilators, meet the criteria specified in section 101(b) of the Act (50 U.S.C. 4511(b)). Under the delegation of authority provided in this order, the Secretary of Health and Human Services may identify additional specific health and medical resources that meet the criteria of section 101(b).

Sec. 2. Priorities and Allocation of Medical Resources.

- (a) Notwithstanding Executive Order 13603 of March 16, 2012 (National Defense Resource Preparedness), the authority of the President conferred by section 101 of the Act to require performance of contracts or orders (other than contracts of employment) to promote the national defense over performance of any other contracts or orders, to allocate materials, services, and facilities as deemed necessary or appropriate to promote the national defense, and to implement the Act in subchapter III of chapter 55 of title 50, United States Code, is delegated to the Secretary of Health and Human Services with respect to all health and medical resources needed to respond to the spread of COVID—19 within the United States.
- (b) The Secretary of Health and Human Services may use the authority under section 101 of the Act to determine, in consultation with the Secretary of Commerce and the heads of other executive departments and agencies as appropriate, the proper nationwide priorities and allocation of all health and medical resources, including controlling the distribution of such materials (including applicable services) in the civilian market, for responding to the spread of COVID–19 within the United States.
- (c) The Secretary of Health and Human Services shall issue such orders and adopt and revise appropriate rules and regulations as may be necessary to implement this order.

- **Sec. 3**. *General Provisions*. (a) Nothing in this order shall be construed to impair or otherwise affect:
 - (i) the authority granted by law to an executive department or agency, or the head thereof; or
 - (ii) the functions of the Director of the Office of Management and Budget relating to budgetary, administrative, or legislative proposals.
- (b) This order shall be implemented consistent with applicable law and subject to the availability of appropriations.
- (c) This order is not intended to, and does not, create any right or benefit, substantive or procedural, enforceable at law or in equity by any party against the United States, its departments, agencies, or entities, its officers, employees, or agents, or any other person.

Au Manny

THE WHITE HOUSE, March 18, 2020.

[FR Doc. 2020–06161 Filed 3–20–20; 8:45 am] Billing code 3295–F0–P

Exhibit 47

Billing Code:

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Notice of Designation of Scarce Materials or Threatened Materials Subject to COVID-19

Hoarding Prevention Measures Under Executive Order 13910 and Section 102 of the

Defense Production Act of 1950

AGENCY: Department of Health and Human Services (HHS).

ACTION: Notice.

SUMMARY: The Department of Health and Human Services (HHS) announces the issuance of

a Notice under Executive Order 13910 (Executive Order) and section 102 of the Defense

Production Act of 1950 (the Act), 50 U.S.C. 4512, as amended, designating health and medical

resources necessary to respond to the spread of Coronavirus Disease 2019 (COVID-19) that are

scarce or the supply of which would be threatened by excessive accumulation. These designated

materials are subject to the hoarding prevention measures authorized under the Executive Order

and the Act. The Notice was issued on March 25, 2020.

DATES: This action took effect March 25, 2020.

FOR FURTHER INFORMATION CONTACT: Bryan Shuy: 202-703-8610;

Bryan.Shuy@hhs.gov

SUPPLEMENTARY INFORMATION:

On March 23, 2020, and in response to the spread of COVID-19, President Trump signed

Executive Order 13910 (Executive Order) to prevent hoarding of health and medical resources

necessary to respond to the spread of COVID-19 within the United States. As provided in the

Executive Order, it is the policy of the United States that health and medical resources needed to

respond to the spread of COVID-19, such as personal protective equipment and sanitizing and

Page **1** of **4**

2

disinfecting products, are appropriately distributed. This policy furthers the goal of protecting the Nation's healthcare systems from undue strain.

Through the Executive Order, the President delegated, to the Secretary of Health and Human Services (the Secretary), his authority under section 102 of the Defense Production Act of 1950, 50 U.S.C. 4512, as amended (the Act), to prevent hoarding of health and medical resources necessary to respond to the spread of COVID-19 within the United States, and his authority to implement the Act in subsection III of chapter 55 of title 50, United States Code (50 U.S.C. 4554, 4555, 4556, and 4660). Under this delegation and the Act, the Secretary may designate such resources as scarce materials or materials the supply of which would be threatened by such accumulation (threatened materials). The Secretary may also prescribe conditions with respect to accumulation of such materials in excess of the reasonable demands of business, personal, or home consumption. The Act prohibits any person from accumulating designated materials (1) in excess of the reasonable demands of business, personal, or home consumption, or (2) for the purpose of resale at prices in excess of prevailing market prices.

HHS is issuing this Notice designating scarce materials or threatened materials that are subject to the hoarding prevention measures authorized under the Executive Order and the Act. Under 50 U.S.C. § 4552(13), the term "materials" includes "(A) any raw materials (including minerals, metals, and advanced processed materials), commodities, articles, components (including critical components), products, and items of supply; and (B) any technical information or services ancillary to the use of any such materials, commodities, articles, components, products, or items." For purposes of this Notice, the term "scarce materials or threatened materials" means health or medical resources, or any of their essential components, determined by the Secretary to be needed to respond to the spread of COVID-19 and which are, or are likely

to be, in short supply or the supply of which would be threatened by hoarding. Designated scarce materials or threatened materials are subject to periodic review by the Secretary.

This designation is not a "regulation" under the Act. *See* 50 U.S.C. 4559. To the extent that it were, the Secretary finds that, in light of the current global pandemic, urgent and compelling circumstances make compliance with public comment requirements impracticable. *See id.* This designation shall terminate after 120 days from the date of publication, unless superseded by a subsequent notice.

A copy of the Notice is provided below and also can be found on HHS's website.

NOTICE OF DESIGNATION OF

SCARCE MATERIALS OR THREATENED MATERIALS

Health or medical resources, or any of their essential components, determined by the Secretary of HHS to be needed to respond to the spread of COVID-19 and which are, or are likely to be, in short supply (scarce materials) or the supply of which would be threatened by hoarding (threatened materials). Designated scarce materials or threatened materials are subject to periodic review by the Secretary.

The following materials are designated pursuant to section 102 of the Defense Production Act (50 U.S.C. § 4512) and Executive Order 13190 of March 23, 2020 (Preventing Hoarding of Health and Medical Resources to Respond to the Spread of COVID-19) as scarce materials or threatened materials:

- 1. N-95 Filtering Facepiece Respirators, including devices that are disposable half-facepiece non-powered air-purifying particulate respirators intended for use to cover the nose and mouth of the wearer to help reduce wearer exposure to pathogenic biological airborne particulates
- 2. Other Filtering Facepiece Respirators (e.g., those designated as N99, N100, R95, R99, R100, or P95, P99, P100), including single-use, disposable half-mask respiratory

- protective devices that cover the user's airway (nose and mouth) and offer protection from particulate materials at an N95 filtration efficiency level per 42 CFR 84.181
- 3. Elastomeric, air-purifying respirators and appropriate particulate filters/cartridges
- 4. Powered Air Purifying Respirator (PAPR)
- 5. Portable Ventilators, including portable devices intended to mechanically control or assist patient breathing by delivering a predetermined percentage of oxygen in the breathing gas
- 6. Drug product with active ingredient chloroquine phosphate or hydroxychloroquine HCl
- 7. Sterilization services for any device as defined in section 201(h) of the Federal Food, Drug, and Cosmetic Act and sterilizers as defined in 21 CFR 880.6860, 880.6870, and 880.6880, including devices that already have FDA marketing authorization and those that do not have FDA marketing authorization but are intended for the same uses
- 8. Disinfecting devices intended to kill pathogens and other kinds of microorganisms by chemical means or physical means, including those defined in 21 CFR 876.1500, 880.6992, and 892.1570 and other sanitizing and disinfecting products suitable for use in a clinical setting
- 9. Medical gowns or apparel, e.g., surgical gowns or isolation gowns
- 10. Personal protective equipment (PPE) coveralls, e.g., Tyvek Suits
- 11. PPE face masks, including any masks that cover the user's nose and mouth and may or may not meet fluid barrier or filtration efficiency levels
- 12. PPE surgical masks, including masks that covers the user's nose and mouth and provides a physical barrier to fluids and particulate materials
- 13. PPE face shields, including those defined at 21 CFR 878.4040 and those intended for the same purpose
- 14. PPE gloves or surgical gloves, including those defined at 21 CFR 880.6250 (exam gloves) and 878.4460 (surgical gloves) and such gloves intended for the same purposes
- 15. Ventilators, anesthesia gas machines modified for use as ventilators, and positive pressure breathing devices modified for use as ventilators (collectively referred to as "ventilators"), ventilator tubing connectors, and ventilator accessories as those terms are described in FDA's March 2020 Enforcement Policy for Ventilators and Accessories and Other Respiratory Devices During the Coronavirus Disease 2019 (COVID-19) Public Health Emergency located at https://www.fda.gov/media/136318/download

Authority

The authority for this Notice is Executive Order 13910 and section 102 of the Defense Production Act of 1950, 50 U.S.C. 4512, as amended.

Exhibit 48



COBB COUNTY BOARD OF COMMISSIONERS

2020 MAR 25 PM 5: 39

Michael H. Boyce

Chairman

100 CHEROKEE STREET, SUITE 300 MARIETTA GEORGIA 30090-7000 Phone: (770) 528-3305 Fax: (770) 528-2606

COBB COUNTY CLERK'S OFFICE

ORDER PURSUANT TO DECLARATION OF EMERGENCY IN COBB COUNTY PERMITTING TEMPORARY RESUMPTION OF OPERATIONS BY STERIGENICS FOR THE STERILIZATION OF PERSONAL PROTECTIVE EQUIPMENT (PPE) NECESSARY TO COMBAT THE COVID-19 PANDEMIC

WHEREAS, the President of the United States declared a National Public Health Emergency on Friday March 13, 2020; and

WHEREAS, the Governor of the State of Georgia declared a State Public Health Emergency in Georgia on March 14, 2020, which was affirmed by the General Assembly on March 16, 2020; and

WHEREAS, the Chairman of the Cobb County Board of Commissioners declared a Local Emergency on March 24, 2020; and

WHEREAS, the World Health Organization has declared Corona Virus Disease 2019 (COVID-19) a world health emergency and a global pandemic; and

WHEREAS, the U.S. Food and Drug Administration (FDA) has indicated that the need for personal protective equipment (PPE), such as surgical masks, surgical and isolation gowns, and surgical suits, may outpace the supply available to healthcare organization during the COVID-19 outbreak; and

WHEREAS, the FDA has indicated that PPE provides barrier protection for the patients and the healthcare workers from the transfer of microorganisms, body fluids, and particulate and is necessary to help contain the spread of this disease; and

WHEREAS, the FDA wrote a letter to Governor Brian Kemp on March 19, 2020, requesting assistance in helping to increase the supply of PPE to help protect against COVID-19 by working with Sterigenics to allow for the appropriate sterilization of PPE; and

WHEREAS, State officials subsequently requested that Cobb County take all reasonable steps to allow Sterigenics to temporarily resume operations in Cobb County so as to increase the supply of critically-needed PPE; and

WHEREAS, Sterigenics has represented it has approximately 200 truckloads of PPE outside its Cobb County facility awaiting sterilization; and

WHEREAS, the Official Code of Cobb County, Georgia, and the Declaration of Emergency issued by the Chairman on March 24, 2020, grant the Chairman authority to performance and exercise any functions, powers and duties as may be deemed necessary by the Chairman, with advice from the CDBH and CEMA, to promote and secure the safety and protection of the civilian population during and following the COVID-19 public health emergency; and

WHEREAS, the Official Code of Cobb County, Georgia, and the Declaration of Emergency issued by the Chairman on March 24, 2020, grant the County Manager authority to suspend any law, code provision or regulation prescribing the procedures for conduct of county business, or the orders, rules or regulations of any county agency, if strict compliance with any ordinance, resolution, order, rule or regulation would in any way prevent, hinder or delay necessary action in coping with the emergency or disaster, provided that such suspension shall provide for the minimum deviation from the requirements under the circumstances and further provided that, when practicable, specialists shall be assigned to avoid adverse effects resulting from such suspension; and

WHEREAS, correspondence provided to Cobb County from the Georgia Environmental Protection Division dated March 24, 2020, certifies that certain protocols regarding recently constructed negative air pressure and exhaust systems have been verified and deemed safe by the Georgia Environmental Protection Division in order remediate and reduce fugitive emissions from the usage of Ethylene Oxide at the facility;

NOW, THEREFORE, pursuant to the authority vested in me by local and state law;

IT IS HEREBY DECLARED that Sterigenics' facility, located in Cobb County at 2971 Olympic Industrial Drive, is temporarily permitted to resume operations for the sole purpose of sterilizing PPE necessary to combat the COVID-19 pandemic.

WHEREFORE, IT IS ORDERED:

1.

In direct response to the correspondence from the FDA to the Governor, and State officials' request that Cobb County take all reasonable steps to allow Sterigenics to temporarily resume operations in Cobb County so as to increase the supply of critically-needed Personal Protective Equipment (PPE), the Chairman hereby authorizes Sterigenics to temporarily resume operations at 2971 Olympic Industrial Drive (the "Facility"), pursuant to the local Declaration of Emergency issued on March 24, 2020.

2.

Activity at the Facility is limited to the sterilization of PPE that is necessary to stem and combat the spread of the current global COVID-19 pandemic, as specifically requested by the FDA.

3.

This limited emergency authorization for sterilization of PPE at the Facility is granted so as to promote and secure the safety and protection of the civilian population during the COVID-19 public health emergency.

4.

This limited emergency authorization does not grant a right to perpetual operation, constitute a valid certificate of occupancy, or authorize continued sterilization upon the expiration or termination of the local Declarations of Emergency.

5.

Upon expiration or termination of the local Declaration of Emergency, Sterigenics must immediately suspend sterilization operations at the Facility. Cobb County will require Sterigenics to revert back to a pre-emergency posture and to wholly comply with all its applicable codes.

6.

Cobb County staff, including but not limited to the Fire Marshal and Chief Building Official, shall reserve the right to inspect any activity at the Facility at any time, and encourages appropriate officials from the Georgia Environmental Protection Division to exercise the same, whether unilaterally or in coordination with Cobb County. The Georgia Environmental Protection Division maintains exclusive jurisdiction over emissions from the Facility.

7.

This limited emergency authorization restricts the total amount of Ethylene Oxide to 20 drums in the Ethylene Oxide storage area and 10 drums for the chamber room area.

8.

To avoid expiration of the limited emergency authorization, Sterigenics shall take swift action to address the outstanding permitting issues at the Facility. Such actions will be supplied to Sterigenics by the County on or before April 1, 2020. Failure to take aggressive action to address these concerns will result in the limited emergency authorization immediately expiring without opportunity for renewal under the terms of this Order.

9.

Any accidents, spills, leaks or other life-threatening incident occurring at the Facility must be reported to the Georgia Environmental Protection Division and to the Cobb County Manager within one hour of said accident and must contain sufficient information to allow response by the State of Georgia or Cobb County.

10.

The limited emergency authorization, effectuated by the Order, is only authorized due to the unprecedented challenge we currently face. As of this date of this Order, the greatest risk to the health, safety and welfare of society is the unabated spread of COVID-19 and the tremendous threat it places upon the healthcare system in the State of Georgia. Allowing the sterilization of critically-needed PPE will assist in combating the exponential growth of COVID-19 and help equip our healthcare providers with the protection they need and deserve.

ENTERED at 5.02 p.m. on March 25, 2020.

COBB COUNTY, GEORGIA

(COUNTY SEAL)

Michael H. Boyce, CHAIRMAN

Cobb County Board of Commissioners

ATTEST:

Pamela L. Mabry, COUNTY CLERK

Cobb County Board of Commissioners

Exhibit 49



Support Local Journalism. Subscribe today for 99¢.



AJC TOP LOCAL STORY: CORONAVIRUS OUTBREAK | 28 minutes ago By Tamar Hallerman, The Atlanta Journal-Constitution

Georgia's public health commissioner said Tuesday that the state is seeking out respirators, ventilators and other medical equipment to try and contain the coronavirus outbreak that has ground American life to a halt.

Dr. Kathleen Toomey said some of Georgia's hardest-hit communities are experiencing equipment shortages and that Gov. Brian Kemp's coronavirus task force

©2020 The Atlanta Journal-Constitution. All Rights Reserved. By using this website, you accept the terms of our Visitor Agreement and Privacy Policy, and understand your options regarding Ad Choices. Learn about careers at Cox Enterprises.

"Not only are we looking to obtain that kind of medical equipment, also personal protective equipment," Toomey said when asked about ventilators and respirators during a live interview on Georgia Public Broadcasting's "Political Rewind."

Toomey's comments came less than a day after President Donald Trump told a group of governors that states should try obtaining such emergency medical equipment on their own rather than wait for the federal government to meet demand.

» COMPLETE COVERAGE: Coronavirus in Georgia

» RELATED: Preparing for surge, hospitals limit visitors, reschedule surgeries

"We will be backing you, but try getting it yourselves. Point of sales, much better, much more direct if you can get it yourself," Trump said, according to audio leaked to The New York Times.

Trump's comments sparked public criticism from some state leaders, including Democratic New Mexico Gov. Michelle Lujan Grisham, who have been looking to the federal government for resources to aid local responses.

Gov. Brian Kemp, through a spokesman, has defended the president's statement.

Trump's comments were "part of a response about encouraging governors to collaborate with private sector partners in getting medical equipment and dispersing testing," said Kemp spokesman Cody Hall. "The point: states may get both quicker that way."

Need Help?

©2020 The Atlanta Journal-Constitution. All Rights Reserved. By using this website, you accept the terms of our Visitor Agreement and Privacy Policy, and understand your options regarding Ad Choices. Learn about careers at Cox Enterprises.

pinch.

Toomey was also asked about whether Georgia was planning to follow other states that have banned large gatherings and ordered local restaurants and bars to shutter. Kemp has largely resisted such mandates, but the governor yesterday ordered all public elementary, secondary and post-secondary schools to close through the end of the month.

"We haven't discussed it today, but everything is being discussed on an hour-to-hour, minute-by-minute basis," Toomey said.

She added: "Whether that is taken is going to depend on people's ... sense of responsibility to not only protect themselves but to protect the community and so far we have only implemented this over the last several days. If (Kemp) sees that people are not heeding the advice to stay home I suspect further action will be taken."

Support real journalism. Support local journalism. Subscribe to The Atlanta Journal-Constitution today. See offers.

Crime | Yesterday

Convicted Cobb child molester killed in prison

AJC

On Brunswick farm, chef Matthew Raiford embraces Gullah Geechee roots to build future on past

Need Help?

©2020 The Atlanta Journal-Constitution. All Rights Reserved. By using this website, you accept the terms of our Visitor Agreement and Privacy Policy, and understand your options regarding Ad Choices. Learn about careers at Cox Enterprises.

Metro Atlanta State News | 4 days ago

Shopper wheeled out on stretcher after fight at metro Atlanta Sam's Club

National World News | Yesterday

Will Trump consider enforcing national curfew amid coronavirus pandemic?

VVIKIDUY | Sponsored

The Dead Giveaway That Tells You When Amazon's Giving You A Better Price Than Other Retailers

Irutn-inder | Sponsored

One Thing All Liars Have in Common, Brace Yourself

BetterBe | Sponsored

Warning: 14 Products To Never Buy At Costco!

Bark Begone | Sponsored

The Best Way to Stop a Barking Dog (It's Genius)

Gundry MD | Sponsored

How To Empty Your Bowels Every Morning - Top Surgeon Explains How

This is Cleveland | Sponsored

A great place to live, work and play

Auto Today | Search Ads | Sponsored

8 New Cars So Awesome It's Hard to Believe They Cost Under \$20k

SmartAsset | Sponsored

People Who Retire Happily Avoid These Financial Advisor Mistakes

HeraldWeekly | Sponsored

Only Baby Boomers Still Think These Uncool Trends Are In

Need Help?

©2020 The Atlanta Journal-Constitution. All Rights Reserved. By using this website, you accept the terms of our Visitor Agreement and Privacy Policy, and understand your options regarding Ad Choices. Learn about careers at Cox Enterprises.

The Penny Hoarder | Sponsored

6 Things to Do With Your Money Once Your Salary Reaches \$70,000

My Deejo | Sponsored

This New Pocket Knife Will Leave You Speechless!

inational vvorid inews | o days ago

Toxicology report: Family slain near Disney shows high

ıvıetro Atıanta State News | resterday

Coronavirus patient urges metro Atlanta residents to stay

1

Cars | Search Ads | Sponsored

Unsold 2019 SUVs On Sale Below MSRP

Reference | Sponsored

The controversial Scene That Took 'Gilligan's Island' Off Air

Collider | Sponsored

Prince Harry And Meghan Markle's New Home Is Not What You'd Expect

Bankrate | Sponsored

These Savings Accounts Pay 20x What Your Current Bank Pays

Bill Cruncher | Sponsored

Georgia Launches New Policy For Cars Used Less Than 50 Miles/Day

Gundry MD Total Restore Supplement | Sponsored

U.S. Cardiologist: It's Like a Pressure Wash for Your Insides

Far & Wide | Sponsored

Most Popular Chain Restaurants, Ranked from Worst to First

bon voyagea | Sponsored

©2020 The Atlanta Journal-Constitution. All Rights Reserved. By using this website, you accept the terms of our Visitor Agreement and Privacy Policy, and understand your

options regarding Ad Choices. Learn about careers at Cox Enterprises.

Need Help?

QUICK IVIEUIGAP | Sponsored

Are you on Medicare? If you live in Georgia, Read This

Historical Post | Sponsored

Jada Pinkett Smith Was Left In Shock After Her Son Made A Heartbreaking Decision

Car and Driver | Sponsored

Best-Selling Car the Year You Graduated High School: 1978-Today

Glow Nutrition Supplement | Sponsored

These Apple Cider Vinegar Gummies are a Game Changer

Kelley Blue Book | Sponsored

2019 Lexus Vehicles Worth Buying for Their Resale Value

Finance101 | Sponsored

30 Movies That Nobody Should Watch According to Rotten Tomatoes

Magellan Times | Sponsored

Prince William Responded to Harry's Decision With This Heartbreaking Statement

Gundry MD | Sponsored

The Real Reason You're Getting Dark Spots (Hint: it isn't the sun!)



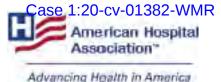
©2020 The Atlanta Journal-Constitution. All Rights Reserved. By using this website, you accept the terms of our Visitor Agreement and Privacy Policy, and understand your options regarding Ad Choices. Learn about careers at Cox Enterprises.

Need Help?

Contact Subscriptions ~	
·	
Products	

© 2020 The Atlanta Journal-Constitution. All Rights Reserved. By using this website, you accept the terms of our Visitor Agreement and Privacy Policy, and understand your options regarding Ad Choices. Learn about careers at Cox Enterprises.

Exhibit 50





March 21, 2020

The President
The White House
1600 Pennsylvania Ave., NW
Washington, D.C. 20500

Dear Mr. President:

We thank you for the actions you have taken to respond to the 2019 novel coronavirus (COVID-19) pandemic, including using your authority to declare a national emergency, which has resulted in much-needed Medicare and Medicaid flexibilities for hospitals, health systems, physicians, nurses and other front line health care providers so they can continue to provide care to patients and prevent spread of the virus. We also greatly appreciate you using your executive authority on March 18 to invoke the Defense Production Act (DPA).

America's hospitals, health systems, physicians and nurses urge you to immediately use the DPA to increase the domestic production of medical supplies and equipment that hospitals, health systems, physicians, nurses and all front line providers so desperately need. As COVID-19 continues to spread throughout the country, these supplies are urgently needed to care for our patients and communities.

The American Hospital Association, the American Medical Association and the American Nurses Association have concerns that increasingly there are dwindling supplies of N95 respirators, isolation gowns, isolation masks, surgical masks, eye protection, intensive care unit equipment and diagnostic testing supplies in areas that had the first community outbreaks and in many other areas of the country. Even with an infusion of supplies from the strategic stockpile and other federal resources, there will not be enough medical supplies, including ventilators, to respond to the projected COVID-19 outbreak. We have heard of health care providers reusing masks or resorting to makeshift alternatives for masks.

Our organizations have been working with your Administration, including the White House Coronavirus Task Force, and with officials at U.S. Department of Health and Human Services, the Centers for Medicare & Medicaid Services, the Centers for Disease Control and Prevention, the Food and Drug Administration, the Assistant Secretary for Preparedness and Response, Assistant Secretary for Health, the U.S. Surgeon General and the Federal Emergency Management Agency. We are sharing information directly from the front lines as we hear from hospitals, health systems, physicians and nurses who are working tirelessly to treat COVIDP-19 patients and prevent further spread.

March 21, 2020 Page 2/2

Thank you for your ongoing leadership during this difficult time.

Sincerely,

/s/ /s/

Richard J. Pollack President and CEO AHA James L. Madara Executive Vice President and CEO AMA Loressa Cole Enterprise CEO ANA

Exhibit 51

https://www.mdjonline.com/news/hhs-national-implications-if-cobb-doesn-t-relax-restrictions-on/article_e46e451c-7085-11ea-a453-63db9e8dceb2.html

HHS: 'National implications' if Cobb doesn't relax restrictions on **Sterigenics**

By Aleks Gilbert agilbert@mdjonline.com Mar 27, 2020



Mike Boyce



Alex Azar Andrew Harnik



Gov. Brian Kemp



Ross Cavitt

Cobb County is in the federal government's crosshairs.

Cobb's decision earlier this week to allow Sterigenics to reopen on a limited basis only did not go far enough, according to the U.S. Department of Health and Human Services.

"The Secretary (of Health and Human Services Alex Azar) does not think it is sufficient to respond to the nation's needs for the medical components that are required to treat COVID-19 patients," the HHS wrote in an email Thursday, according to Cobb County spokesman Ross Cavitt.

Cavitt shared the content of the email with the MDJ but referred the Journal to the Governor's Press Office when asked for a copy of the original. The MDJ has filed an open records request for the document.

The company's sterilization plant in Smyrna closed last summer to expedite emissions improvements on the facility as requested by the state. Later, the county imposed a stay on any reopenings, and the facility was to remain closed pending county-initiated third-party investigations into Cobb fire code and building safety concerns.

Last week, the U.S. Food and Drug Administration urged Gov. Brian Kemp to reopen the Smyrna plant. According to the FDA, Sterigenics Atlanta could help the nation's battle with the coronavirus by sterilizing much-needed personal protective equipment used by doctors treating people infected with the virus.

On Wednesday, citing the FDA's letter to Kemp, County Chairman Mike Boyce allowed the plant to reopen — but only for the duration of a county-imposed state of emergency, which is set to expire April 15 unless Boyce renews it. His order also limits permitted sterilization at the plant to personal protective equipment such as masks and gowns and limits the amount of ethylene oxide that can be stored on-site.

The HHS thinks those limits could imperil the nation's fight against the virus, according to Cavitt.

"We don't think that one county should be allowed to jeopardize the nation's response to an unprecedented national pandemic," the HHS wrote, according to Cavitt. "My understanding is that this particular plant represented 4% of the total U.S. capacity for Ethylene Oxide Sterilization. If it remains shuttered, there are national implications.

"Conversations on next steps from the Federal Government are occurring at the highest levels, should the situation not change."

According to Cavitt, HHS notes Boyce's order lasts only 21 days, while the crisis is expected to extend well beyond that. HHS also notes the country will need more than personal protective equipment in its fight against the virus.

Items such as catheters, syringes, IV sets and ventilator components "are critical to helping patients" the HHS wrote.cBoyce described the letter as a "threat."

"Of course it was," Boyce told the MDJ on Friday. "Anybody who's spent any time in Washington like I have knows exactly what it was."

Boyce said he was trying to strike a middle ground with his order allowing the plant to reopen.

Janet Rau, president of Stop Sterigenics Georgia, agrees.

"What I believe Boyce is doing is trying to balance the needs of the county and the residents of this area and what the federal government is trying to push on us," she said.

The FDA's letter to Kemp cited the need for personal protective equipment as the rationale behind reopening Sterigenics. Boyce said that is what he allowed — "nothing more, nothing less."

Earlier in the week, Rau questioned the logic behind using ethylene oxide to sterilize personal protective equipment.

There are different levels of sterilization, she said, ranging from Level 1, clean, to Level 4, sterile.

"They don't have to be at Level 4 sterile," Rau said of the protective equipment. "You're actually keeping them out of the hospitals for a longer period of time. It takes three weeks for something to get into the cycle and get completely through it."

Boyce said he stands by his order.

"(But) if they want to come in here and nationalize Sterigenics and take it over — Hey! I understand how it works," Boyce said. "If you think anybody at the county level is going to withstand the full force of the U.S. government, I don't know what world you live in."

Exhibit 52



Coronavirus Disease 2019 (COVID-19)

Situation Summary

This is a rapidly evolving situation and CDC will provide updated information and guidance as it becomes available.

Updated March 18, 2020

CDC is responding to a pandemic of respiratory disease spreading from person-to-person caused by a novel (new) coronavirus. The disease has been named "coronavirus disease 2019" (abbreviated "COVID-19"). This situation poses a serious public health risk. The federal government is working closely with state, local, tribal, and territorial partners, as well as public health partners, to respond to this situation. COVID-19 can cause mild to severe illness; most severe illness occurs in older adults.

Situation in U.S.

Different parts of the country are seeing different levels of COVID-19 activity. The United States nationally is currently in the initiation phases, but states where community spread is occurring are in the acceleration phase. The duration and severity of each phase can vary depending on the characteristics of the virus and the public health response.

- CDC and state and local public health laboratories are testing for the virus that causes COVID-19. View CDC's Public Health Laboratory Testing map.
- All 50 states have reported cases of COVID-19 to CDC.
- U.S. COVID-19 cases include:
 - Imported cases in travelers
 - Cases among close contacts of a known case
 - Community-acquired cases where the source of the infection is unknown.
- Three U.S. states are experiencing sustained community spread.
- View latest case counts, deaths, and a map of states with reported cases.

Confirmed COVID-19 Cases Global Map



View larger image and see a list of locations



COVID-19 cases in the U.S.

CDC Recommends

- Everyone can do their part to help us respond to this emerging public health threat:
 - o On March 16, the White House announced a program called "15 Days to Slow the Spread," ▶ ☑ which is a nationwide effort to slow the spread of COVID-19 through the implementation of social distancing at all levels of society.
 - Older people and people with severe chronic conditions should take special precautions because they are at higher risk of developing serious COVID-19 illness.
 - If you are a healthcare provider, use your judgment to determine if a patient has signs and symptoms compatible with COVID-19 and whether the patient should be tested. Factors to consider in addition to clinical symptoms may include:
 - Does the patient have recent travel from an affected area?
 - Has the patient been in close contact with someone with COVID-19 or with patients with pneumonia of unknown cause?
 - Does the nation tracide in an area where there has been community shread of COVID 107

- Dues the patient reside in an area where there has been community spread of COVID-15:
- If you are a healthcare provider or a public health responder caring for a COVID-19 patient, please take care of yourself and follow recommended infection control procedures.
- If you are a close contact of someone with COVID-19 and develop symptoms of COVID-19, call your healthcare provider and tell them about your symptoms and your exposure. They will decide whether you need to be tested. Keep in mind that there is no treatment for COVID-19 and people who are mildly ill are able to isolate at home.
- If you are a resident in a community where there is ongoing spread of COVID-19 and you develop COVID-19 symptoms, call your healthcare provider and tell them about your symptoms. They will decide whether you need to be tested. Keep in mind that there is no treatment for COVID-19 and people who are mildly ill are able to isolate at home.
- For people who are ill with COVID-19, but are not sick enough to be hospitalized, please follow CDC guidance on how to reduce the risk of spreading your illness to others. People who are mildly ill with COVID-19 are able to isolate at home during their illness.
- If you have been in China or another affected area or have been exposed to someone sick with COVID-19 in the last 14 days, you will face some limitations on your movement and activity. Please follow instructions during this time. Your cooperation is integral to the ongoing public health response to try to slow spread of this virus.

COVID-19 Emergence

COVID-19 is caused by a coronavirus. Coronaviruses are a large family of viruses that are common in people and many different species of animals, including camels, cattle, cats, and bats. Rarely, animal coronaviruses can infect people and then spread between people such as with MERS-CoV, SARS-CoV, and now with this new virus (named SARS-CoV-2).

The SARS-CoV-2 virus is a betacoronavirus, like MERS-CoV and SARS-CoV. All three of these viruses have their origins in bats. The sequences from U.S. patients are similar to the one that China initially posted, suggesting a likely single, recent emergence of this virus from an animal reservoir.

Early on, many of the patients at the epicenter of the outbreak in Wuhan, Hubei Province, China had some link to a large seafood and live animal market, suggesting animal-to-person spread. Later, a growing number of patients reportedly did not have exposure to animal markets, indicating person-to-person spread. Person-to-person spread was subsequently reported outside Hubei and in countries outside China, including in the United States. Some international destinations now have ongoing community spread with the virus that causes COVID-19, as do some parts of the United States. Community spread means some people have been infected and it is not known how or where they became exposed. Learn more about the spread of this newly emerged coronavirus.

Severity

The complete clinical picture with regard to COVID-19 is not fully known. Reported illnesses have ranged from very mild (including some with no reported symptoms) to severe, including illness resulting in death. While information so far suggests that most COVID-19 illness is mild, a report 🗹 out of China suggests serious illness occurs in 16% of cases. Older people and people of all ages with severe chronic medical conditions — like heart disease, lung disease and diabetes, for example seem to be at higher risk of developing serious COVID-19 illness. A CDC Morbidity & Mortality Weekly Report that looked at severity of disease among COVID-19 cases in the United States by age group found that 80% of deaths were among adults 65 years and older with the highest percentage of severe outcomes occurring in people 85 years and older.

Learn more about the symptoms associated with COVID-19.

COVID-19 Pandemic

A pandemic is a global outbreak of disease. Pandemics happen when a new virus emerges to infect people and can spread between people sustainably. Because there is little to no pre-existing immunity against the new virus, it spreads worldwide.

The virus that causes COVID-19 is infecting people and spreading easily from person-to-person. Cases have been detected in most countries worldwide and community spread is being detected in a growing number of countries. On March 11, the COVID-19 outbreak was characterized as a pandemic by the WHO \square .

This is the first pandemic known to be caused by the emergence of a new coronavirus. In the past century, there have been four pandemics caused by the emergence of novel influenza viruses. As a result, most research and guidance around pandemics is specific to influenza, but the same premises can be applied to the current COVID-19 pandemic. Pandemics of respiratory disease follow a certain progression outlined in a "Pandemic Intervals Framework." Pandemics begin with an investigation phase, followed by recognition, initiation, and acceleration phases. The peak of illnesses occurs at the end of the acceleration phase, which is followed by a deceleration phase, during which there is a decrease in illnesses. Different countries can be in different phases of the pandemic at any point in time and different parts of the same country can also be in different phases of a pandemic.

There are ongoing investigations to learn more. This is a rapidly evolving situation and information will be updated as it becomes available.

Risk Assessment

Risk depends on characteristics of the virus, including how well it spreads between people; the severity of resulting illness; and the medical or other measures available to control the impact of the virus (for example, vaccines or medications that can treat the illness) and the relative success of these. In the absence of vaccine or treatment medications, nonpharmaceutical interventions become the most important response strategy. These are community interventions that can reduce the impact of disease.

The risk from COVID-19 to Americans can be broken down into risk of exposure versus risk of serious illness and death.

Risk of exposure:

- The immediate risk of being exposed to this virus is still low for most Americans, but as the outbreak expands, that risk will increase. Cases of COVID-19 and instances of community spread are being reported in a growing number of states.
- People in places where ongoing community spread of the virus that causes COVID-19 has been reported are at elevated risk of exposure, with the level of risk dependent on the location.
- Healthcare workers caring for patients with COVID-19 are at elevated risk of exposure.
- Close contacts of persons with COVID-19 also are at elevated risk of exposure.
- Travelers returning from affected international locations where community spread is occurring also are at elevated risk of exposure, with level of risk dependent on where they traveled.

Risk of Severe Illness:

Early information out of China, where COVID-19 first started, shows that some people are at higher risk of getting very sick from this illness. This includes:

- Older adults, with risk increasing by age.
- People who have serious chronic medical conditions like:
 - Heart disease
 - Diabetes
 - Lung disease

CDC has developed guidance to help in the risk assessment and management of people with potential exposures to COVID-19.

What May Happen

More cases of COVID-19 are likely to be identified in the United States in the coming days, including more instances of community spread. CDC expects that widespread transmission of COVID-19 in the United States will occur. In the coming months, most of the U.S. population will be exposed to this virus.

Widespread transmission of COVID-19 could translate into large numbers of people needing medical care at the same time. Schools, childcare centers, and workplaces, may experience more absenteeism. Mass gatherings may be sparsely attended or postponed. Public health and healthcare systems may become overloaded, with elevated rates of hospitalizations and deaths.

Other critical infrastructure, such as law enforcement, emergency medical services, and sectors of the transportation industry may also be affected. Healthcare providers and hospitals may be overwhelmed. At this time, there is no vaccine to protect against COVID-19 and no medications approved to treat it. Nonpharmaceutical interventions will be the most important response strategy to try to delay the spread of the virus and reduce the impact of disease.

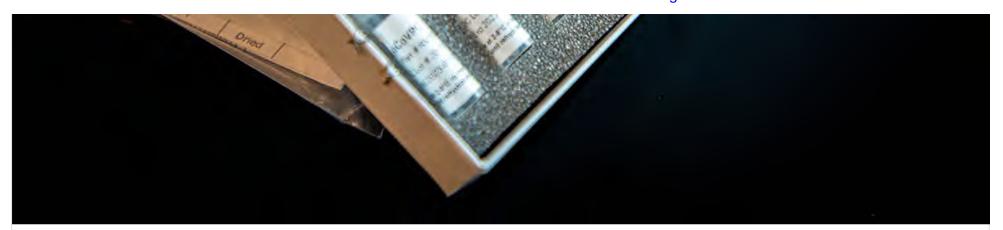
CDC Response

Global efforts at this time are focused concurrently on lessening the spread and impact of this virus. The federal government is working closely with state, local, tribal, and territorial partners, as well as public health partners, to respond to this public health threat.

Highlights of CDC's Response

- CDC established a COVID-19 Incident Management System on January 7, 2020. On January 21, CDC activated its Emergency Operations Center to better provide ongoing support to the COVID-19 response.
- The U.S. government has taken unprecedented steps with respect to **travel** in response to the growing public health threat posed by this new coronavirus:
 - Foreign nationals who have been in China, Iran, the United Kingdom, Ireland and any one of the 26 European countries in the Schengen Area within the past 14 days cannot enter the United States.
 - U.S. citizens, residents, and their immediate family members who have been any one of those countries within in the past 14 days can enter the United States, but they are subject to health monitoring and possible quarantine for up to 14 days.
 - People at higher risk of serious COVID-19 illness avoid cruise travel and non-essential air travel.
 - CDC has issued additional specific travel guidance related to COVID-19.
- CDC has issued clinical guidance, including:
 - Clinical Guidance for Management of Patients with Confirmed Coronavirus Disease (COVID-19).
 - Infection Prevention and Control Recommendations for Patients, including guidance on the use of personal protective equipment (PPE) during a shortage.
- CDC also has issued guidance for other settings, including:
 - Preparing for COVID-19: Long-term Care Facilities, Nursing Homes
 - Discontinuation of Home Isolation for Persons with COVID-19
- CDC has deployed multidisciplinary teams to support state health departments in case identification, contact tracing, clinical management, and public communications.
- CDC has worked with federal partners to support the safe return of Americans overseas who have been affected by COVID-19.





This is a picture of CDC's laboratory test kit for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). CDC tests are provided to U.S. state and local public health laboratories, Department of Defense (DOD) laboratories and select international laboratories.



- An important part of CDC's role during a public health emergency is to develop a test for the pathogen and equip state and local public health labs with testing capacity.
 - CDC developed an rRT-PCR test to diagnose COVID-19.
 - As of the evening of March 17, 89 state and local public health labs in 50 states, the District of Columbia, Guam, and
 Puerto Rico have successfully verified and are currently using CDC COVID-19 diagnostic tests.
 - Commercial manufacturers are now producing their own tests.
- CDC has grown the COVID-19 virus in cell culture, which is necessary for further studies, including for additional genetic characterization. The cell-grown virus was sent to NIH's BEI Resources Repository [7] for use by the broad scientific community.
- CDC also is developing a serology test for COVID-19.

Other Available Resources

The following resources are available with information on COVID-19

• World Health Organization, Coronavirus

Page last reviewed: March 18, 2020

Exhibit 53



Coronavirus Disease 2019 (COVID-19)

Interim Clinical Guidance for Management of Patients with Confirmed Coronavirus Disease (COVID-19)

Summary of Recent Changes

Revisions were made on March 7, 2020, to reflect the following:

- Characteristics of patients with confirmed COVID-19 based on recent epidemiologic data from China, including characteristics of patients with COVID-19 admitted to the intensive care unit and data on pediatric cases
- Data regarding SARS-CoV-2 viral shedding among asymptomatic persons, and data from a recent report of viable SARS-CoV-2 isolation from stool
- Accessibility of investigational drug therapies for COVID-19 treatment through clinical trial enrollment in the United States
- Recently published pediatric surviving sepsis guidance

Updated March 7, 2020

This interim guidance is for clinicians caring for patients with confirmed infection with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that causes coronavirus disease (COVID-19).

This update includes additional information from recent reports including:

- Characteristics of patients with confirmed COVID-19 based on recent epidemiologic data from China, including characteristics of patients with COVID-19 admitted to the intensive care unit and data on pediatric cases
- Data regarding SARS-CoV-2 viral shedding among asymptomatic persons, and data from a recent report of viable SARS-CoV-2 isolation from stool
- Accessibility of investigational drug therapies for COVID-19 treatment through clinical trial enrollment in the United States
- Recently published pediatric surviving sepsis guidance

CDC will update this interim guidance as more information becomes available.

Clinical Presentation

Among reports that describe the clinical presentation of patients with confirmed COVID-19, most are limited to hospitalized patients with pneumonia. The incubation period is estimated at 4 days (interquartile range: 2 to 7 days). [1] Some studies have estimated a wider range for the incubation period; data for human infection with other coronaviruses (e.g. MERS-CoV, SARS-CoV) suggest that the incubation period may range from 2-14 days. Frequently reported signs and symptoms of patients admitted to the hospital include fever (77–98%), cough (46%–82%), myalgia or fatigue (11–52%), and shortness of breath (3-31%) at illness onset. [2–5] Among 1,099 hospitalized COVID-19 patients, fever was present in 44% at hospital admission, and developed in 89% during hospitalization. [6] Other less commonly reported respiratory symptoms include sore throat, headache, cough with sputum production and/or hemoptysis. Some patients have experienced gastrointestinal symptoms such as diarrhea and nausea prior to developing fever and lower respiratory tract signs and symptoms. The fever course among patients with COVID-19 is not fully understood; it may be prolonged and intermittent. A limited number of reports describe identification of asymptomatic or subclinical infection on the basis of detection of SARS-CoV-2 RNA or live virus from throat swab specimens of contacts of confirmed patients. [7–8]

Risk factors for severe illness are not yet clear, although older patients and those with chronic medical conditions may be at higher risk for severe illness. Among more than 44,000 confirmed cases of COVID-19 in China as of Feb 11, 2020, most

proportion among cases aged ≥ 60 years was: 60-69 years: 3.6%; 70-79 years: 8%; ≥ 80 years: 14.8%. Patients who reported no underlying medical conditions had an overall case fatality of 0.9%, but case fatality was higher for patients with comorbidities: 10.5% for those with cardiovascular disease, 7% for diabetes, and 6% each for chronic respiratory disease, hypertension, and cancer. Case fatality for patients who developed respiratory failure, septic shock, or multiple organ dysfunction was 49%. [9]

Limited information is available about the clinical presentation, clinical course, and risk factors for severe COVID-19 in children. Of confirmed COVID-19 patients in China as of Feb 11, 2020, only 2.1% were aged <20 years, and no deaths were reported among those <10 years of age [9]. From limited published reports, signs and symptoms among children with COVID-19 may be more mild than adults, with most pediatric patients presenting with fever, cough, congestion, and rhinorrhea [10, 12–13], and one report of primarily gastrointestinal symptoms (vomiting and diarrhea) [13]. Prolonged detection of SARS-CoV RNA has been reported in respiratory specimens (up to 22 days after illness onset) and stool specimens (at least 30 days after illness onset) [10–11]. Severe complications of acute respiratory distress syndrome and septic shock were reported in a 13-month old with COVID-19 in China [13].

Clinical Course

Clinical presentation among reported cases of COVID-19 varies in severity from asymptomatic infection to mild illness to severe or fatal illness. Some reports suggest the potential for clinical deterioration during the second week of illness.[2,5] In one report, among patients with confirmed COVID-19 and pneumonia, just over half of patients developed dyspnea a median of 8 days after illness onset (range: 5–13 days). [2] In another report, the mean time from illness onset to hospital admission with pneumonia was 9 days.[1] Acute respiratory distress syndrome (ARDS) developed in 17–29% of hospitalized patients, and secondary infection developed in 10%. [2,4] In one report, the median time from symptom onset to ARDS was 8 days.[3]

Approximately 20-30% of hospitalized patients with COVID-19 and pneumonia have required intensive care for respiratory support.[2–3] Compared to patients not admitted to an intensive care unit, critically ill patients were older (median age 66 years versus 51 years), and were more likely to have underlying co-morbid conditions (72% versus 37%). [3] Among critically ill patients admitted to an intensive care unit, 11–64% received high-flow oxygen therapy and 47-71% received mechanical ventilation; some hospitalized patients have required advanced organ support with endotracheal intubation and mechanical ventilation (4–42%).[3–4,9] A small proportion have also been supported with extracorporeal membrane oxygenation (ECMO, 3–12%).[3–4,9] Other reported complications include cardiac injury, arrhythmia, septic shock, liver dysfunction, acute kidney injury, and multi-organ failure. Post-mortem biopsies in one patient who died of ARDS reported pulmonary findings of diffuse alveolar damage. [14]

An overall case fatality proportion of 2.3% has been reported among confirmed cases of COVID-19 in China. [9] However, the majority of these cases were among hospitalized patients and therefore this estimate of mortality is likely biased upward. Among hospitalized patients with pneumonia, the case fatality proportion has been reported as 4–15%.[2–4] Among critically ill COVID-19 patients in China, the reported case fatality proportion was 49%. In a report from one hospital, 61.5% of critically ill patients with COVID-19 had died by day 28 of ICU admission. [9,15]

Diagnostic Testing

Information on specimen collection, handling, and storage is available at: Real-Time RT-PCR Panel for Detection 2019-Novel Coronavirus. After initial confirmation of COVID-10, additional testing of clinical specimens can help inform clinical management, including discharge planning.

Laboratory and Radiographic Findings

The most common laboratory abnormalities reported among hospitalized patients with pneumonia on admission included leukopenia (9–25%), leukocytosis (24–30%), lymphopenia (63%), and elevated alanine aminotransferase and aspartate aminotransferase levels (37%). [2,4] Among 1,099 COVID-19 patients, lymphocytopenia was present in 83%; 36% had thrombocytopenia, and 34% had leukopenia. [6] Most patients had normal serum levels of procalcitonin on admission. Chest CT images have shown bilateral involvement in most patients. Multiple areas of consolidation and ground glass opacities are typical findings reported to date. [2–4, 16–24] However, one study that evaluated the time from symptom onset to initial CT scan found that 56% of patients who presented within 2 days had a normal CT. [20]

Limited data are available about the detection of SARS-CoV-2 RNA and infectious virus in clinical specimens. SARS-CoV-2 RNA has been detected from upper and lower respiratory tract specimens, and the virus has been isolated in cell culture from upper respiratory tract specimens and bronchoalveolar lavage fluid. In one case series SARS-CoV-2 viral RNA levels in the first

3 days after symptom onset were higher in specimens collected from the nose than from the throat (as demonstrated by lower cycle threshold values in the nose). [25] A similar time course and pattern of viral RNA detection was reported in one asymptomatic patient after exposure to a patient with confirmed COVID-19. [25]

SARS-CoV-2 RNA has been detected in blood and stool specimens and SARS-CoV-2 virus has been isolated in cell culture from the stool of a patient with pneumonia 15 days after symptom onset. [26–29]. The duration of SARS-CoV-2 RNA detection in the upper and lower respiratory tracts and in extrapulmonary specimens is not yet known. It is possible that RNA could be detected for weeks, which has occurred in some cases of MERS-CoV or SARS-CoV infection. [30–37] Viable SARS-CoV has been isolated from respiratory, blood, urine, and stool specimens. In contrast, viable MERS-CoV has been isolated only from respiratory tract specimens. [37–39]

Clinical Management and Treatment

For information regarding infection prevention and control recommendations, please see Interim Infection Prevention and Control Recommendations for Patients with Confirmed Coronavirus Disease 2019 (COVID-19) or Persons Under Investigation for COVID-19 in Healthcare Settings.

Patients with a mild clinical presentation may not initially require hospitalization. However, clinical signs and symptoms may worsen with progression to lower respiratory tract disease in the second week of illness; all patients should be monitored closely. Possible risk factors for progressing to severe illness may include, but are not limited to, older age, and underlying chronic medical conditions such as lung disease, cancer, heart failure, cerebrovascular disease, renal disease, liver disease, diabetes, immunocompromising conditions, and pregnancy.

The decision to monitor a patient in the inpatient or outpatient setting should be made on a case-by-case basis. This decision will depend not only on the clinical presentation, but also on the patient's ability to engage in monitoring, home isolation, and the risk of transmission in the patient's home environment. For more information, see Evaluating and Reporting Persons Under Investigation (PUI)

No specific treatment for COVID-19 is currently available. Clinical management includes prompt implementation of recommended infection prevention and control measures and supportive management of complications, including advanced organ support if indicated.

Corticosteroids should be avoided, because of the potential for prolonging viral replication as observed in MERS-CoV patients, unless indicated for other reasons. [31, 40–42] For example, for a chronic obstructive pulmonary disease exacerbation or for septic shock per Surviving Sepsis guidelines for adults \square and children \square .

For more information, see: WHO interim guidance on clinical management of severe acute respiratory infection when novel coronavirus (nCoV) infection is suspected . Diagnosis and Treatment of Adults with Community-acquired Pneumonia. An Official Clinical Practice Guideline of the American Thoracic Society and Infectious Diseases Society of America. , and Surviving Sepsis Campaign International Guidelines for the Management of Septic Shock and Sepsis-Associated Organ Dysfunction in Children

Investigational Therapeutics

There are currently no antiviral drugs licensed by the U.S. Food and Drug Administration (FDA) to treat patients with COVID-19. In the United States, the National Institutes of Health (NIH) and collaborators are working on development of candidate vaccines and therapeutics for COVID-19. Some in-vitro or in-vivo studies suggest potential therapeutic activity of compounds against related coronaviruses, but there are no available data from randomized controlled trials in humans to support recommending any investigational therapeutics for patients with confirmed or suspected COVID-19 at this time.

Remdesivir is an investigational antiviral drug that was reported to have in-vitro activity against SARS-CoV-2. [43] Some patients with COVID-19 have received intravenous remdesivir for compassionate use outside of a clinical trial setting. In China, multiple clinical trials of investigational therapeutics have been implemented, including two clinical trials of remdesivir. An NIH adaptive randomized controlled clinical trial of investigational therapeutics for hospitalized COVID-19 patients in the United States was approved by the Food and Drug Administration; the first investigational therapeutic to be studied is remdesivir. Other remdesivir trials for COVID-19 patients in the U.S. are available (participants with severe of and moderate)

coronavirus disease). Some COVID-19 patients have received uncontrolled treatment with other investigational antivirals. [4, 28, 44] For information on specific clinical trials underway for treatment of patients with COVID-19, see clinicaltrials.gov . and www.chictr.org.cn

In the absence of an approved vaccine, community mitigation measures are the primary way to reduce SARS-CoV-2 transmission among persons in the community, and adherence to recommended infection prevention and control measures can reduce the risk of SARS-CoV-2 spread in healthcare facilities. In the absence of an approved therapeutic with demonstrated safety and efficacy in patients with COVID-19, clinical management of COVID-19 patients includes avoidance of corticosteroids, and supportive care of complications, including advanced organ support.

Discontinuation of Transmission-Based Precautions or Home Isolation

For recommendations on discontinuation of transmission-based precautions or home isolation for patients who have recovered from COVID-19 illness, please see: Interim Guidance for Discontinuation of Transmission-Based Precautions and Disposition of Hospitalized Patients with COVID-19 and Interim Guidance for Discontinuation of In-Home Isolation for Patients with COVID-19

Additional resources:

- Society of Critical Care Medicine's Guidelines on the Management of Critically III Adults with COVID-19 🔼 🔀
- Evaluating and Reporting Persons Under Investigation (PUI)
- Resources for Hospitals and Healthcare Professionals Preparing for Patients with Suspected or Confirmed COVID-19
- Interim Infection Prevention and Control Recommendations for Patients with Confirmed Coronavirus Disease 2019 (COVID-19) or Persons Under Investigation for COVID-19 in Healthcare Settings
- World Health Organization. Interim Guidance on Clinical management of severe acute respiratory infection when novel coronavirus (nCoV) infection is suspected
- American Thoracic Society and Infectious Diseases Society of America Clinical Practice Guidelines. Diagnosis and treatment of adults with community-acquired pneumonia
- Surviving Sepsis Campaign: International Guidelines for Management of Sepsis and Septic Shock: 2016
- Surviving Sepsis Campaign International Guidelines for the Management of Septic Shock and Sepsis-Associated Organ Dysfunction in Children 🖸
- Clinical Practice Guidelines by the Infectious Diseases Society of America: 2018 Update on Diagnosis, Treatment, Chemoprophylaxis, and Institutional Outbreak Management of Seasonal Influenza

References

- 1. Guan WJ, Ni ZY, Hu Y, Liang WH, Ou CQ, He JX, Liu L, Shan H, Lei CL, Hui DSC, Du B, Li LJ, Zeng G, Yuen KY, Chen RC, Tang CL, Wang T, Chen PY, Xiang J, Li SY, Wang JL, Liang ZJ, Peng YX, Wei L, Liu Y, Hu YH, Peng P, Wang JM, Liu JY, Chen Z, Li G, Zheng ZJ, Qiu SQ, Luo J, Ye CJ, Zhu SY, Zhong NS; China Medical Treatment Expert Group for Covid-19. Clinical Characteristics of Coronavirus Disease 2019 in China. N Engl J Med. 2020 Feb 28. doi: 10.1056/NEJMoa2002032. [Epub ahead of print]
- 2. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, Zhang L, Fan G, Xu J, Gu X, Cheng Z. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *The Lancet*. 2020 Jan 24.
- 3. Wang D, Hu B, Hu C, Zhu F, Liu X et al. Clinical Characteristics of 138 Hospitalized Patients With 2019 Novel Coronavirus-Infected Pneumonia in Wuhan. Published online February 7, 2020.
- 4. Chen N, Zhou M, Dong X, Qu J, Gong F. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. *Lancet*. 2020 Jan 30. [Epub ahead of print]
- 5. Holshue ML, DeBolt C, Lindquist S, Lofy KH, Wiesman J et al. First Case of 2019 Novel Coronavirus in the United States. N Engl J Med. 2020 Jan 31. doi: 10.1056/NEJMoa2001191. [Epub ahead of print]Huang C, Wang Y, Li X, Ren L, Zhao J, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet*. 2020 Jan 24. [Epub ahead of print]
- 6. Li Q, Guan X, Wu P, Wang X, Zhou L, et al. Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus-Infected Pneumonia. *N Engl J Med*. 2020 Jan 29.
- 7. Chan JF, Yuan S, Kok K, To KK, Chu H, et al. A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster. *Lancet*. 2020 Jan 24. [Epub ahead of print]

- 8. Hoehl S, Berger A, Kortenbusch M, Cinatl J, Bojkova D, Rabenau H, Behrens P, Böddinghaus B, Götsch U, Naujoks F, Neumann P. Evidence of SARS-CoV-2 Infection in Returning Travelers from Wuhan, China. New England Journal of Medicine. 2020 Feb 18.
- 9. Novel Coronavirus Pneumonia Emergency Response Epidemiology Teamexternal icon ☑ . [The Epidemiological Characteristics of an Outbreak of 2019 Novel Coronavirus Diseases (COVID-19) in China]. *Zhonghua Liu Xing Bing Xue Za Zhi*. 2020;41(2):145–151. DOI:10.3760/cma.j.issn.0254-6450.2020.02.003.
- 10. Kam KQ, Yung CF, Cui L, Lin Tzer Pin R, Mak TM, Maiwald M, Li J, Chong CY, Nadua K, Tan NWH, Thoon KC. A Well Infant with Coronavirus Disease 2019 (COVID-19) with High Viral Load. Clin Infect Dis. 2020 Feb 28. pii: ciaa201. doi: 10.1093/cid/ciaa201. [Epub ahead of print]
- 11. Cai J, Xu J, Lin D, Yang Z, Xu L, Qu Z, Zhang Y, Zhang H, Jia R, Liu P, Wang X, Ge Y, Xia A, Tian H, Chang H, Wang C, Li J, Wang J, Zeng M. A Case Series of children with 2019 novel coronavirus infection: clinical and epidemiological features. Clin Infect Dis. 2020 Feb 28. pii: ciaa198. doi: 10.1093/cid/ciaa198. [Epub ahead of print]
- 12. Wei M, Yuan J, Liu Y, Fu T, Yu X, Zhang ZJ. Novel Coronavirus Infection in Hospitalized Infants Under 1 Year of Age in China. JAMA. 2020 Feb 14. doi: 10.1001/jama.2020.2131. [Epub ahead of print]
- 13. Chen F, Liu ZS, Zhang FR, Xiong RH, Chen Y, Cheng XF, Wang WY, Ren J. [First case of severe childhood novel coronavirus pneumonia in China]. Zhonghua Er Ke Za Zhi. 2020 Feb 11;58(0):E005. doi: 10.3760/cma.j.issn.0578-1310.2020.0005. [Epub ahead of print] Chinese.
- 14. Xu Z, Shi L, Wang Y, Zhang J, Huang L, Zhang C, Liu S, Zhao P, Liu H, Zhu L, Tai Y, Bai C, Gao T, Song J, Xia P, Dong J, Zhao J, Wang FS. Pathological findings of COVID-19 associated with acute respiratory distress syndrome. Lancet Respir Med. 2020 Feb 18. pii: S2213-2600(20)30076-X. doi: 10.1016/S2213-2600(20)30076-X. [Epub ahead of print]
- 15. Yang X, Yu Y, Xu J, Shu H, Xia J, et al. Clinical course and outcomes of critically ill patients with SARS-CoV-2 pneumonia in Wuhan, China: a single-centered, retrospective, observational study. Lancet Respir Med. 2020. Published Online February 21, 2020 https://doi.org/10.1016/S2213-2600(20)30079-5
- 16. Chang D, Minggui L, Wei L, Lixin X, Guangfa Z et al. Epidemiologic and Clinical Characteristics of Novel Coronavirus Infections Involving 13 Patients Outside Wuhan China. Published online February 7, 2020.
- 17. Zhu N, Zhang D, Wang W, Li X, Yang B, et al; China Novel Coronavirus Investigating and Research Team. A Novel Coronavirus from Patients with Pneumonia in China, 2019. *N Engl J Med*. 2020 Jan 24. [Epub ahead of print]
- 18. Phan LT, Nguyen TV, Luong QC, Nguyen TV, Nguyen HT et al. Importation and Human-to-Human Transmission of a Novel Coronavirus in Vietnam. *N Engl J Med.* 2020 Jan 28. doi: 10.1056/NEJMc2001272. [Epub ahead of print]
- 19. Lei J, Li J, Li X, Qi X. CT Imaging of the 2019 Novel Coronavirus (2019-nCoV) Pneumonia. *Radiology*. 2020 Jan 31:200236. doi: 10.1148/radiol.2020200236. [Epub ahead of print]
- 20. Bernheim A, Mei X, Huang M, Yang Y, Fayad ZA, Zhang N, Diao K, Lin B, Zhu X, Li K, Li S. Chest CT Findings in Coronavirus Disease-19 (COVID-19): Relationship to Duration of Infection. Radiology. 2020 Feb 20:200463.
- 21. Xu X, Yu C, Qu J, Zhang L, Jiang S, Huang D, Chen B, Zhang Z, Guan W, Ling Z, Jiang R, Hu T, Ding Y, Lin L, Gan Q, Luo L, Tang X, Liu J. Imaging and clinical features of patients with 2019 novel coronavirus SARS-CoV-2. Eur J Nucl Med Mol Imaging. 2020 Feb 28. doi: 10.1007/s00259-020-04735-9. [Epub ahead of print]
- 22. Yang W, Cao Q, Qin L, Wang X, Cheng Z, Pan A, Dai J, Sun Q, Zhao F, Qu J, Yan F. Clinical characteristics and imaging manifestations of the 2019 novel coronavirus disease (COVID-19):A multi-center study in Wenzhou city, Zhejiang, China. J Infect. 2020 Feb 26. pii: S0163-4453(20)30099-2. doi: 10.1016/j.jinf.2020.02.016. [Epub ahead of print]
- 23. Ai T, Yang Z, Hou H, Zhan C, Chen C, Lv W, Tao Q, Sun Z, Xia L. Correlation of Chest CT and RT-PCR Testing in Coronavirus Disease 2019 (COVID-19) in China: A Report of 1014 Cases. Radiology. 2020 Feb 26:200642. doi: 10.1148/radiol.2020200642. [Epub ahead of print]
- 24. Shi H, Han X, Jiang N, Cao Y, Alwalid O, Gu J, Fan Y, Zheng C. Radiological findings from 81 patients with COVID-19 pneumonia in Wuhan, China: a descriptive study. Lancet Infect Dis. 2020 Feb 24. pii: S1473-3099(20)30086-4. doi: 10.1016/S1473-3099(20)30086-4. [Epub ahead of print]
- 25. Zou L, Ruan F, Huang M, Liang L, Huang H, et al. SARS-CoV-2 Viral Load in Upper Respiratory Specimens of Infected Patients. N Engl J Med. 2020 Feb 19. doi: 10.1056/NEJMc2001737. [Epub ahead of print]
- 26. Zhang W, Du RH, Li B, Zheng XS, Yang XL, Hu B, Wang YY, Xiao GF, Yan B, Shi ZL, Zhou P. Molecular and serological investigation of 2019-nCoV infected patients: implication of multiple shedding routes. Emerging Microbes & Infections. 2020 Jan 1;9(1):386-9.
- 27. Chen W, Lan Y, Yuan X, Deng X, Li Y, Cai X, Li L, He R, Tan Y, Deng X, Gao M, Tang G, Zhao L, Wang J, Fan Q, Wen C, Tong Y, Tang Y, Hu F, Li F, Tang X. Detectable 2019-nCoV viral RNA in blood is a strong indicator for the further clinical severity. Emerg Microbes Infect. 2020 Dec;9(1):469-473.

- 28. Young BE, Ong SWX, Kalimuddin S, Low JG, Tan SY, Loh J, Ng OT, Marimuthu K, Ang LW, Mak TM, Lau SK, Anderson DE, Chan KS, Tan TY, Ng TY, Cui L, Said Z, Kurupatham L, Chen MI, Chan M, Vasoo S, Wang LF, Tan BH, Lin RTP, Lee VJM, Leo YS, Lye DC; Singapore 2019 Novel Coronavirus Outbreak Research Team. Epidemiologic Features and Clinical Course of Patients Infected With SARS-CoV-2 in Singapore. JAMA. 2020 Mar 3. doi: 10.1001/jama.2020.3204. [Epub ahead of print]
- 29. Zhang Y, Chen C, Zhu S, Shu C, Wang D, Song J, et al. Isolation of 2019-nCoV from a Stool Specimen of a Laboratory-Confirmed Case of the Coronavirus Disease 2019 (COVID-19)[J]. *China CDC Weekly*, 2020, 2(8): 123-124
- 30. Memish ZA, Assiri AM, Al-Tawfiq JA. Middle East respiratory syndrome coronavirus (MERS-CoV) viral shedding in the respiratory tract: an observational analysis with infection control implications. *Int J Infect Dis.* 2014 Dec;29:307-8.
- 31. Zumla A, Hui DS, Perlman S. Middle East respiratory syndrome. *Lancet*. 2015 Sep 5;386(9997):995-1007. doi: 10.1016/S0140-6736(15)60454-8. Epub 2015 Jun 3. Review.
- 32. Chan KH, Poon LL, Cheng VC, Guan Y, Hung IF et al. Detection of SARS coronavirus in patients with suspected SARS. *Emerg Infect Dis.* 2004 Feb;10(2):294-9.
- 33. Cheng PK, Wong DA, Tong LK, Ip SM, Lo AC et al. Viral shedding patterns of coronavirus in patients with probable severe acute respiratory syndrome. *Lancet*. 2004 May 22;363(9422):1699-700.
- 34. Hung IF, Cheng VC, Wu AK, Tang BS, Chan KH et al. Viral loads in clinical specimens and SARS manifestations. *Emerg Infect Dis.* 2004 Sep;10(9):1550-7.
- 35. Peiris JS, Chu CM, Cheng VC, Chan KS, Hung IF, et al; HKU/UCH SARS Study Group. Clinical progression and viral load in a community outbreak of coronavirus-associated SARS pneumonia: a prospective study. *Lancet*. 2003 May 24;361(9371):1767-72.
- 36. Liu W, Tang F, Fontanet A, Zhan L, Zhao QM et al. Long-term SARS coronavirus excretion from patient cohort, China. *Emerg Infect Dis.* 2004 Oct;10(10):1841-3.
- 37. Corman VM, Albarrak AM, Omrani AS, Albarrak MM, Farah ME, et al. Viral Shedding and Antibody Response in 37 Patients With Middle East Respiratory Syndrome Coronavirus Infection. *Clin Infect Dis.* 2016 Feb 15;62(4):477-483.
- 38. Al-Abdely HM, Midgley CM, Alkhamis AM, Abedi GR, Lu X, et al. Middle East respiratory syndrome coronavirus infection dynamics and antibody responses among clinically diverse patients, Saudi Arabia. *Emerg Infect Dis.* 2019 Apr;25(4):753-766.
- 39. Al-Abdely HM, Midgley CM, Alkhamis AM, Abedi GR, Tamin A et al. Infectious MERS-CoV Isolated From a Mildly Ill Patient, Saudi Arabia. *Open Forum Infect Dis.* 2018 May 15;5(6):ofy111.
- 40. Arabi YM, Mandourah Y, Al-Hameed F, Sindi AA, Almekhlafi GA, et al; Saudi Critical Care Trial Group. Corticosteroid Therapy for Critically Ill Patients with Middle East Respiratory Syndrome. *Am J Respir Crit Care Med*. 2018 Mar 15;197(6):757-767.
- 41. Russell CD, Millar JE, Baillie JK. Clinical evidence does not support corticosteroid treatment for 2019-nCoV lung injury. *Lancet*. 2020 Feb 6; S0140-6736(20)30305-6.
- 42. Metlay JP, Waterer GW, Long AC, Anzueto A, Brozek J, et al. Diagnosis and treatment of adults with community-acquired pneumonia. An Official Clinical Practice Guideline of the American Thoracic Society and Infectious Diseases Society of America. *Am J Respir Crit Care Med*. 2019 Oct 1;200(7):e45-e67.
- 43. Wang M, Cao R, Zhang L, Yang X, Liu J, Xu M, Shi Z, Hu Z, Zhong W, Xiao G. Remdesivir and chloroquine effectively inhibit the recently emerged novel coronavirus (2019-nCoV) in vitro. *Cell Res.* 2020 Feb 4. doi: 1038/s41422-020-0282-0. [Epub ahead of print] PubMed PMID: 32020029.
- 44. Xu XW, Wu XX, Jiang XG, Xu KJ, Ying LJ, Ma CL, Li SB, Wang HY, Zhang S, Gao HN, Sheng JF, Cai HL, Qiu YQ, Li LJ. Clinical findings in a group of patients infected with the 2019 novel coronavirus (SARS-Cov-2) outside of Wuhan, China: retrospective case series. BMJ. 2020 Feb 19;368:m606. doi:10.1136/bmj.m606.

Page last reviewed: March 20, 2020

Exhibit 54

BMJ 2020;368:m1091 doi: 10.1136/bmj.m1091 (Published 26 March 2020)

Page 1 of 14



RESEARCH

Clinical characteristics of 113 deceased patients with coronavirus disease 2019: retrospective study

OPEN ACCESS

Tao Chen *doctor*¹, Di Wu *doctor*¹, Huilong Chen *doctor*¹, Weiming Yan *research associate*¹, Danlei Yang *doctor*², Guang Chen *doctor*¹, Ke Ma *doctor*¹, Dong Xu *doctor*¹, Haijing Yu *doctor*¹, Hongwu Wang *doctor*¹, Tao Wang *doctor*², Wei Guo *doctor*¹, Jia Chen *doctor*¹, Chen Ding *doctor*¹, Xiaoping Zhang *doctor*¹, Jiaquan Huang *doctor*¹, Meifang Han *doctor*¹, Shusheng Li *doctor*³, Xiaoping Luo *doctor*⁴, Jianping Zhao *doctor*², Qin Ning *doctor*¹

¹Department and Institute of Infectious Disease, Tongji Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan 430030, China; ²Department of Respiratory Disease, Tongji Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China; ³Department of Emergency Medicine, Tongji Hospital, Huazhong University of Science and Technology, Wuhan, China; ⁴Department of Paediatrics, Tongji Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China

Abstract

Abstract

Objective—To delineate the clinical characteristics of patients with coronavirus disease 2019 (covid-19) who died.

Design Retrospective case series.

Setting Tongji Hospital in Wuhan, China.

Participants -Among a cohort of 799 patients, 113 who died and 161 who recovered with a diagnosis of covid-19 were analysed. Data were collected until 28 February 2020.

Main outcome measures — Clinical characteristics and laboratory findings were obtained from electronic medical records with data collection forms.

Results — The median age of deceased patients (68 years) was significantly older than recovered patients (51 years). Male sex was more predominant in deceased patients (83; 73%) than in recovered patients (88; 55%). Chronic hypertension and other cardiovascular comorbidities were more frequent among deceased patients (54 (48%) and 16 (14%)) than recovered patients (39 (24%) and 7 (4%)). Dyspnoea, chest tightness, and disorder of consciousness were more common in deceased patients (70 (62%), 55 (49%), and 25 (22%)) than in recovered patients (50 (31%), 48 (30%), and 1 (1%)). The median time from disease onset to death in deceased patients was 16 (interquartile range 12.0-20.0) days. Leukocytosis was present in 56 (50%) patients who died and 6 (4%) who recovered, and lymphopenia was present in 103 (91%) and 76 (47%) respectively. Concentrations of alanine aminotransferase, aspartate aminotransferase, creatinine, creatine kinase, lactate dehydrogenase, cardiac troponin I, N-terminal pro-brain natriuretic peptide, and D-dimer were markedly higher in deceased patients than in recovered patients. Common complications observed

more frequently in deceased patients included acute respiratory distress syndrome (113; 100%), type I respiratory failure (18/35; 51%), sepsis (113; 100%), acute cardiac injury (72/94; 77%), heart failure (41/83; 49%), alkalosis (14/35; 40%), hyperkalaemia (42; 37%), acute kidney injury (28; 25%), and hypoxic encephalopathy (23; 20%). Patients with cardiovascular comorbidity were more likely to develop cardiac complications. Regardless of history of cardiovascular disease, acute cardiac injury and heart failure were more common in deceased patients.

Conclusion —Severe acute respiratory syndrome coronavirus 2 infection can cause both pulmonary and systemic inflammation, leading to multi-organ dysfunction in patients at high risk. Acute respiratory distress syndrome and respiratory failure, sepsis, acute cardiac injury, and heart failure were the most common critical complications during exacerbation of covid-19.

Introduction

Coronaviruses are important pathogens of humans and animals that can cause diseases ranging from the common cold to more severe and even fatal respiratory infections. In the past two decades two highly pathogenic human coronaviruses, the coronavirus responsible for severe acute respiratory syndrome (SARS-Cov) and the coronavirus responsible for Middle East respiratory syndrome (MERS-Cov), 12 have emerged in two separate events. They induced lower respiratory tract infection as well as extrapulmonary manifestations, leading to hundreds or thousands of cases with high mortality rates of up to 50% in certain populations. In December 2019 a new strain of coronavirus, officially named severe acute respiratory syndrome coronavirus 2 (SARS-Cov-2), was first isolated from three patients with coronavirus disease 2019 (covid-19) by the Chinese

Center for Disease Control and Prevention, ³⁴ connected to the cluster of acute respiratory illness cases from Wuhan, China. Recent epidemiological reports have provided evidence for person to person transmission of the SARS-Cov-2 in family and hospital settings. ⁵⁶ As of 28 February 2020, the number of patients infected with SARS-Cov-2 has exceeded 83 652 globally, and more than 2858 have now died of covid-19, with the highest mortality rate of 4.47% in Wuhan. On 30 January 2020, the World Health Organization declared that the outbreak of SARS-Cov-2 constituted a public health emergency of international concern.

Evidence indicates that substantial similarities exist between severe acute respiratory syndrome and covid-19. A recent study reported a 79.5% genome sequence identity between SARS-Cov-2 and SARS-Cov, and SARS-Cov-2 was 96% identical in terms of whole genome sequence to a bat coronavirus. Clinical and pathological features of patients with covid-19 have recently been reported, showing that the SARS-Cov-2 infection causes clusters of severe and even fatal pneumonia with clinical presentation greatly resembling that of SARS-Cov infection, associated with admission to intensive care units and high mortality.8 The first study of the initial 41 laboratory confirmed cases with covid-19 showed that 28 (68%) of 41 patients had been discharged and six (15%) had died.8 A larger case series involving 138 consecutive patients admitted to hospital with covid-19 showed that 47 (34%) patients were discharged and six died (overall mortality 4.3%). Demographic. clinical, laboratory, and radiological differences between patients who were and were not admitted to the intensive care unit have been fully evaluated. Given that the numbers of patients in these studies is relatively small, information about the clinical characteristics of patients who died is scarce. No vaccine or specific antiviral treatment for covid-19 has yet been shown to be effective, so supportive therapy that eases the symptoms and protects multi-organ function may be beneficial. Identifying or more promptly treating patients in high risk groups is crucial to decrease the mortality rate.

In this study, we did a comprehensive evaluation of deceased patients and patients recovered among those with confirmed covid-19 who were previously transferred or admitted to the isolation ward of Wuhan Tongji Hospital, which is one of the designated hospitals assigned by Chinese government for patients severely or critically ill with covid-19. We aimed to compare the demographic, clinical, laboratory, and radiological features of patients with different clinical outcomes.

Methods

Study participants and data collection

From 13 January to 12 February 2020, 799 moderately to severely ill or critically ill patients with confirmed covid-19 were transferred from other hospitals or isolation sites or admitted from fever clinics to Tongji Hospital. Tongji Hospital was urgently reconstructed and has been assigned by Chinese government as a designed hospital for severely or critically ill patients with covid-19. As of 28 February 2020, 113 of the 799 patients had died, with a mortality rate of up to 14.1%, and 161 patients had recovered and been discharged. The remaining 525 patients were still in hospital and receiving medical care. All patients were diagnosed as having covid-19 and classified as being moderately, severely, or critically ill according to the Guidance for Corona Virus Disease 2019 (6th edition) released by the National Health Commission of China. 10 All the recovered patients with covid-19 had completely resolved symptoms and signs, had significant improvement in pulmonary and

extrapulmonary organ dysfunction, and no longer needed supportive care, with confirmed viral clearance by repeated tests for SARS-Cov-2 before hospital discharge. Written informed consent was waived owing to the rapid emergence of this infectious disease.

We obtained epidemiological, clinical, laboratory, and radiological characteristics, as well as treatment and outcome data, from electronic medical records for deceased patients and recovered patients by using data collection forms. We collected data on demographics, medical history, exposure history, underlying chronic diseases, symptoms and signs, laboratory findings, computed tomographic scans of the chest, and treatment (including antiviral therapy, antibiotics, corticosteroid therapy, and oxygen support) during the hospital admission. The clinical data were monitored up to 28 February 2020. The research team of experienced clinicians from Tongji Hospital, Tongji Medical College, Huazhong University of Science and Technology analysed patients' medical records. A trained team of physicians and researchers independently entered and cross checked data in a computerised database. If the core data were missing, we sent requests for clarification to the coordinators, who subsequently contacted the clinicians responsible for the treatment of the patients. As some patients presented with various forms of disorder of consciousness on admission, we obtained data on their medical histories and pre-admission information through contact with their close relatives and by accessing medical records from previous hospital visits.

The supplementary table shows the criteria and definitions for the diagnosis, clinical classification (mild, moderate, severe, and critically ill), ¹⁰ and complications (acute respiratory distress syndrome, acute kidney injury, sepsis, shock, acute liver injury, acute heart failure, and cardiac injury)⁸ ¹¹⁻¹³ for covid-19.

Laboratory measurements

Real time reverse transcription polymerase chain reaction assay for SARS-Cov-2

Throat swab samples were collected for extracting SARS-Cov-2 RNA from patients. The respiratory sample RNA isolation kit (Biogerm, Shanghai, China) was used to extract total RNA within two hours. Briefly, 40 µL of cell lysates were transferred into a collection tube followed by vortex for 10 seconds. After standing at room temperature for 10 minutes, the collection tube was centrifuged at 1000 revolutions per minute for five minutes. The suspension was used for real time reverse transcription polymerase chain reaction (RT-PCR) assay of SARS-Cov-2 RNA. Two target genes—open reading frame 1ab (ORF1ab) and nucleocapsid protein (N)—were simultaneously amplified and tested during the real time RT-PCR assay. Target 1 (ORF1ab) comprised forward primer CCCTGTGGGTTTTACACTTAA, reverse primer ACGATTGTGCATCAGCTGA, and the probe 5'-VIC-CCGTCTGCGGTATGTGGAAAGGTTATGG-BHQ1-3'. Target 2 (N) comprised forward primer GGGGAACTTCTCCTGCTAGAAT, reverse primer CAGACATTTTGCTCTCAAGCTG, and the probe 5'-FAM-TTGCTGCTGCTTGACAGATT-TAMRA-3'. The real time RT-PCR assay was conducted using a SARS-Cov-2 nucleic acid detection kit according to the manufacturer's protocol (Shanghai Bio-germ Medical Technology company). The reaction mixture contains 12 μL of reaction buffer, 4 μL of enzyme solution, 4 μL of Probe primers solution, 3 μL of diethyl pyrocarbonate treated water, and 2 μL of RNA template. The RT-PCR assay was conducted under the following conditions: incubation at 50°C for 15 minutes and 95°C for five minutes,

40 cycles of denaturation at 94°C for 15 seconds, and extending and collecting fluorescence signal at 55°C for 45 seconds. A cycle threshold value less than 37 was defined as a positive test result, and a cycle threshold value of 40 or more was defined as a negative test. These diagnostic criteria were based on the recommendation by the National Institute for Viral Disease Control and Prevention (China) (http://ivdc.chinacdc.cn/kyjz/202001/t20200121_211337.html). A medium load, defined as a cycle threshold value of 37 to less than 40, required confirmation by retesting.

Clinical laboratory measurements

Initial clinical laboratory investigation included a complete blood count, serum biochemical tests (including liver and kidney function, creatine kinase, lactate dehydrogenase, and electrolytes), a coagulation profile, and cytokine tests. Respiratory specimens, including nasal and pharyngeal swabs, or sputum were tested to exclude evidence of other viral infections, including influenza, respiratory syncytial virus, avian influenza, parainfluenza virus, and adenovirus.

Principles of management of patients

Supportive therapy

Vital signs and oxygen saturation should be monitored (every eight hours; patients with severe disease need continuous monitoring), supportive treatment strengthened, sufficient calories provided, and the stability of the internal environment, such as water, electrolyte, and acid-base balance, maintained. The intake and output volumes should be strictly balanced, especially in critical ill patients.

Oxygen therapy

Supplemental oxygen therapy should be given immediately to patients with hypoxaemia. Oxygen therapy can be started at a flow rate of 5 L/min, and the target oxygen saturation is pulse oxygen saturation $\geq 90\%$ in non-pregnant adult patients, $\geq 92-95\%$ in pregnant patients, and $\geq 94\%$ in patients who are critically ill with severe respiratory distress, shock, or coma.

If standard oxygen therapy fails, mechanical ventilation should be considered; high flow nasal catheter oxygen or non-invasive ventilation (for example, bilevel positive airway pressure mode) can be used. If no improvement is seen within one hour of non-invasive mechanical ventilation, invasive mechanical ventilation should be used. Experienced experts can recommend extracorporeal membrane pulmonary oxygenation according to their evaluation of the patient's situation.

Empirical antimicrobial therapy

If a history of seasonal or local influenza epidemiology exists, empirical therapy may be considered.

Blood purification therapy

Continuous renal replacement therapy can be used in critically ill patients.

Statistical analysis

We present categorical variables as numbers and percentages and continuous variables as mean and standard deviation if they were normally distributed or median and interquartile range if they were not. We compared means for continuous variables by using independent group t tests when the data were normally distributed; otherwise, we used the Mann-Whitney test. We

compared proportions for categorical variables by using the χ^2 test. We used Fisher's exact test in the analysis of contingency tables when the sample sizes were small. For unadjusted comparisons, we considered a two sided P value below 0.05 to be statistically significant. We used SPSS (version 19.0) for all analyses.

Patient and public involvement

This was a retrospective case series study, and no patients were involved in the study design or in setting the research questions or the outcome measures directly. No patients were asked to advise on interpretation or writing up of results.

Results

Demographics and baseline characteristics of deceased patients and recovered patients

From 13 January to 12 February 2020, 799 moderately to severely ill or critically ill patients with confirmed covid-19 were transferred or admitted to Tongji Hospital. As of 28 February 2020, 113 of these patients had died of covid-19 and 161 patients had fully recovered and been discharged. As shown in table 1, the median age of deceased patients was 68 (interquartile range 62.0-77.0) years, which was significantly older than recovered patients (51 (37.0-66.0) years); 94 (83%) deceased patients and 59 (37%) who recovered were aged 60 or older. Male sex was more predominant in deceased patients (83; 73%) than in recovered patients (88; 55%). Overall, 71 (63%) patients who died and 62 (39%) who recovered had at least one chronic medical condition. Hypertension, cardiovascular disease, and cerebrovascular disease were much more frequent among deceased patients (54 (48%), 16 (14%), and 4 (4%)) than among recovered patients (39 (24%), 7 (4%), and 0 (0%)). Few patients had a current or former cigarette smoking history of at least 30 pack years. The proportion of healthcare workers among deceased patients (1; 1%) was significantly lower than among recovered patients (18; 11%). Likewise, the proportion of patients with a history of close contact with previously confirmed patients tended to be lower in deceased patients (44; 12%) than in recovered patients (33; 20%).

Fever and cough were the most prevalent symptoms at disease onset in both deceased patients (104 (92%) and 79 (70%)) and recovered patients (145 (90%) and 106 (66%)), and the proportions of patients reporting these symptoms in the two groups were comparable. Other prevalent symptoms at onset of illness in deceased patients included fatigue, dyspnoea, chest tightness, and sputum production; less common symptoms included anorexia, diarrhoea, and myalgia. Dyspnoea and chest tightness were much more common in deceased patients (70 (62%) and 55 (49%)) than in recovered patients (50 (31%) and 48 (30%)). Twenty five (22%) people who died and only one (1%) who recovered had disorders of consciousness on hospital admission. Nine deceased patients and 16 who recovered had no fever, with fatigue, cough, dyspnoea, myalgia, or diarrhoea as the initial symptoms. Among these, one patient with no symptoms who recovered was diagnosed as having covid-19 during routine physical examination, and another complained only of stinging eyes for two weeks before being admitted to

Among the deceased patients, the median time from onset of symptoms to hospital admission was 10.0 (interquartile range 7.0-13.0) days, which tended to be longer than for recovered patients (9.0 (6.0-12.0) days). The median time from onset of symptoms to death in deceased patients was 16 (12.0-20.0) days,

and the median time from first symptoms to discharge in recovered patients was 26 (21.8-29.0) days. The median time from admission to death was 5 (3.0-9.3) days and the median time from admission to discharge was 16 (14.0-19.0) days.

Measures of vital signs were recorded on the day of hospital admission for all patients. Median systolic blood pressure was significantly higher in deceased patients (137.0 mm Hg) than recovered patients (125.0 mm Hg). More patients who died than who recovered had arterial pressure of 140 mm Hg or higher (50 (44%) v 33 (20%)). Heart rates were much higher in deceased patients (101.0 beats per minute) than in recovered patients (91.0 beats per minute). Respiratory rates were significantly higher in deceased patients (24.0 breaths per minute) than in recovered patients (20.0 breaths per minute). Deceased patients more often developed tachycardia and tachypnoea (respiratory rate ≥24 breaths per minute) (56 (50%) and 66 (58%)) than did recovered patients (48 (30%) and 22 (14%)). Seventy two (4%) deceased patients and only 19 (12%) who recovered had percutaneous oxygen saturation of 93% or below on admission.

Laboratory parameters of deceased patients and recovered patients

We observed substantial differences in laboratory findings between patients who died of covid-19 and those who recovered from it (table 2). Fifty six (50%) deceased patients and only six (4%) who recovered developed leukocytosis (white blood cell count $\geq 10 \times 10^9 / L$). Deceased patients had persistent and more severe lymphopenia than recovered patients; 44 (39%) deceased patients and eight (5%) recovered patients had lymphocyte counts below $0.5 \times 10^9 / L$. Median platelet counts were significantly lower in deceased patients.

Concentrations of alanine aminotransferase, aspartate aminotransferase, total bilirubin, alkaline phosphatase, and γ -glutamyl transpeptidase were markedly higher in deceased patients than in recovered patients. Fifty nine (52%) deceased patients and 25 (16%) who recovered had abnormal aspartate aminotransferase concentrations (>40 U/L). Albumin concentrations were significantly lower in deceased patients than in recovered patients. Seventy four (65%) deceased patients and 22 (14%) recovered patients developed hypoalbuminaemia (albumin <32 g/L). Concentrations of blood urea nitrogen, creatinine, potassium, triglycerides, creatine kinase, and lactate dehydrogenase were significantly higher in deceased patients than in recovered patients. Concentrations of hypersensitive cardiac troponin I and N-terminal pro-brain natriuretic peptide were markedly higher in deceased patients (40.8 pg/mL and 800.0 pg/mL) than in recovered patients (3.3 pg/mL and 72.0 pg/mL), with eight deceased patients having cardiac troponin I above 1000 pg/mL and two above 10 000 pg/mL. In addition, deceased patients more often had increased cardiac troponin I and N-terminal pro-brain natriuretic peptide concentrations (68/94 (72%) and 68/80 (85%)) than did recovered patients (15/109 (14%) and 17/93 (18%)).

Median prothrombin time was significantly longer in deceased patients than in recovered patients, whereas activated partial thromboplastin time was comparable between the two groups. D-dimer concentrations were markedly greater in deceased patients (4.6 μ g/mL) than in recovered patients (0.6 μ g/mL). Thirty four (35%) of 97 deceased patients and only three (2%) of 150 recovered patients had D-dimer concentrations above 21μ g/mL. Concentrations of procalcitonin, high sensitivity C-reactive protein, and ferritin, as well as erythrocyte sedimentation rate, were significantly higher in deceased patients

than in recovered patients. Thirty five (36%) of 96 deceased patients and three (2%) of 140 recovered patients had procalcitonin of 0.5 ng/mL or higher. Thyroid stimulating hormone and free triiodothyronine concentrations were significantly lower in deceased patients (0.7 mIU/mL and 2.8 pmol/L) than in recovered patients (1.4 mIU/mL and 4.3 pmol/L). Serum circulating immunoglobulin A, immunoglobulin G, and immunoglobulin M did not differ significantly between the two groups, whereas complement 3 and complement 4 concentrations were markedly lower in deceased patients than in recovered patients.

Of patients with available data, concentrations of interleukin 2 receptor, interleukin 6, interleukin 8, interleukin 10, and tumour necrosis factor α were significantly higher in deceased patients than in recovered patients. Deceased patients more often had increased concentrations of interleukin 2 receptor, interleukin 6, interleukin 8, interleukin 10, and tumour necrosis factor α than did recovered patients. Most (48/53; 91%) deceased patients had undetectable concentrations of interleukin 1 β . Forty two (86%) of 49 deceased patients and 58 (50%) of 117 recovered patients had proteinuria, and 40 (82%) of 49 deceased patients and 44 (38%) of 117 recovered patients showed microscopic haematuria.

On admission, abnormalities on chest radiographs were seen in all patients (fig 1); 113 (100%) deceased patients and 152 (94%) recovered patients had bilateral involvement on chest radiographs. Typical findings on chest computed tomography images on admission of deceased patients showed bilateral ground glass opacity and subsegmental areas of consolidation (fig 1, A and C), which then progressed rapidly with mass shadows of high density in both lungs (fig 1, B and D). Representative chest computed tomography images of recovered patients showed right middle lobe and lower lobe ground glass opacity and consolidation (fig 1, E and F); then bilateral ground glass opacity and bilateral consolidation of the lungs progressed but right middle lobe consolidation resolved (fig 1, G). Follow-up images showed obviously resolved bilateral ground glass opacity and consolidation (fig 1, H).

Arterial blood gases were measured in 35 deceased patients and 32 recovered patients (table 3). Five (14%) deceased patients and 3 (9%) recovered patients had pH below 7.35, whereas 14 (40%) deceased patients and five (16%) recovered patients had pH 7.45 or above. The median arterial partial pressure of oxygen in deceased patients was 59.2 mm Hg, which was significantly lower than that of recovered patients (121.0 mm Hg). Eighteen of 35 deceased patients and none who recovered had arterial partial pressure of oxygen below 60 mmHg, and all of these had partial pressure of carbon dioxide below 50 mmHg, indicating that they had type I respiratory failure. The median arterial partial pressure of oxygen to fraction of inspired oxygen ratio was significantly lower in deceased patients (105.1) than in recovered patients (350.0). Moreover, all the deceased patients and 14 (44%) recovered patients had an arterial partial pressure of oxygen to fraction of inspired oxygen ratio of 300, indicating that these patients had developed acute respiratory distress syndrome, whereas severe acute respiratory distress syndrome (≤100) developed only in deceased patients (16; 46%). Actual bicarbonate and total carbon dioxide concentration were markedly lower in deceased patients than in recovered patients.

Complications and primary interventions of deceased patients and recovered patients

Among the deceased patients, respiratory and cardiac complications were numerous (table 4). Common complications

observed in deceased patients included acute respiratory distress syndrome (113; 100%), type I respiratory failure (18/35; 51%), sepsis (113; 100%), acute cardiac injury (72/94; 77%), heart failure (41/83; 49%), shock (46; 41%), alkalosis (14/35; 40%), hyperkalaemia (42; 37%), acute kidney injury (28; 25%), and hypoxic encephalopathy (23; 20%). These were significantly more frequent than in recovered patients, showing their potential association with the clinical outcome. Less common complications in deceased patients included acidosis, disseminated intravascular coagulation, and acute liver injury. One patient who died developed gastrointestinal bleeding. Patients with cardiovascular comorbidities were more likely to develop acute cardiac injury and heart failure. In addition, although more deceased patients had chronic hypertension, among patients with available data regardless of history of coexisting cardiovascular disease, cardiac complications were more frequent in deceased patients than in recovered patients. Fewer deceased patients (89; 79%) than recovered patients (147; 91%) received monotherapy or combination therapy with antiviral agents (oseltamivir, arbidol, or lopinavir/ritonavir), whereas more deceased patients (99; 88%) than recovered patients (118; 73%) were given glucocorticoid therapy, considering the severe pneumonia and "cytokine storm" observed in patients who died. One hundred and five (93%) deceased patients and 144 (89%) who recovered received empirical antibacterial therapy (moxifloxacin, cefoperazone, or azithromycin). Forty four (39%) deceased patients and 59 (37%) who recovered received intravenous immunoglobulin therapy. Fewer deceased patients (25; 22%) than recovered patients (64; 40%) received interferon α inhalation treatment. Significantly more deceased patients (93; 82%) than recovered patients (26; 16%) received mechanical ventilation. Invasive mechanical ventilation was needed in 17 (15%) deceased patients, one of whom received extracorporeal membrane pulmonary oxygenation as rescue therapy. Three deceased patients received continuous renal replacement therapy.

Discussion

Our study comprehensively described the major differences in clinical features between the patients who died of covid-19 and those who recovered from it. The median age of deceased patients was significantly older than that of recovered patients. Male sex was more predominant in patients who died than in those who recovered. Chronic hypertension and other cardiovascular comorbidities were more frequent among deceased patients than recovered patients. Symptoms related to hypoxemia were more common in deceased patients than in recovered patients. Deceased patients more often developed systematic inflammation and multi-organ dysfunction than did recovered patients. The indicators of cardiac injury showed more frequent or prominent abnormalities in deceased patients than in recovered patients. The information provided will further enrich knowledge about this critical disease and may consequently help to improve patients' outcomes and lower the fatality rate.

Comparison with other studies

The clinical spectrum of covid-19 varies widely, ranging from an asymptomatic infection to severe and critical pneumonia with high fatality rates. The Chinese Centers for Disease Control recently reported that most of the confirmed cases were classified as mild or moderate, 13.8% as severe, and only 4.7% as critically ill. ¹⁴ The overall fatality rate for confirmed covid-19 cases was found to be higher in male than in female patients,

with the risk of death rising with age for both sexes. The highest fatality rate was in people aged 80 and above.

The overall mortality rate of covid-19 is much lower than for severe acute respiratory syndrome (10%) and Middle East respiratory syndrome (30%). 15 16 However, covid-19 has ultimately proven more deadly as it has spread to many more people globally than did the others, owing to rapid person to person transmission and atypical symptoms at an early stage in certain patients. 5 Here, we report a relatively high mortality rate for covid-19 of up to 14.1%, which is higher than in recent reports. This is partly due to a large proportion of severely or critically ill patients admitted to Tongji Hospital, one of the designated hospitals for severe covid-19, and to the medical resource limitations at the beginning of the covid-19 outbreak. These resources were improved by early February, with prompt supply of medics and medical necessities from across the nation to Wuhan.

In accordance with the recent reports on characteristics of patients with covid-19 who needed management in intensive care units, 89 17 advanced age (>60), male sex, and comorbidities (particularly hypertension) are believed to be risk factors for severe disease and death from SARS-Cov-2 infection. Thus, early vigilant monitoring along with high quality supportive care are needed in patients at high risk. It is notable that healthcare workers as well as close contacts of previously confirmed patients were likely to have a good outcome, which is consistent with the relatively low fatality rate (0.3%) reported in healthcare workers. 18 This could be explained by the fact that in our study the median age of the healthcare workers was much younger than that of the remaining patients (data not shown). It could also be partly due to the lower mortality observed in the second generation of SARS-Cov-2 infection, 19 as well as to the early awareness of potential infection in that scenario meaning that people would seek medical care or start treatment promptly. Furthermore, the time from onset of symptoms to hospital admission was longer in deceased patients, as some of them had been in a critical condition before being transferred from other healthcare units to Tongji Hospital. This highlights the need to develop community awareness about prompt seeking of medical care and earlier referral to the intensive care unit for high risk populations.

The incidence of symptoms including fever, cough, fatigue, anorexia, myalgia, and diarrhoea did not differ significantly between deceased patients and recovered patients, whereas dyspnoea, chest tightness, and disorders of consciousness were more common in those who died. Moreover, the vital signs data showed that most deceased patients had tachycardia and/or tachypnoea as well as pulse oxygen saturation of 93% or lower. These signs and symptoms indicated that most deceased patients had been in a severe or critical condition on admission, and the onset of certain symptoms may help physicians to identify the patients at risk of a poor outcome.

The differences in abnormalities of laboratory findings between the deceased patients and the survivors were substantial. Most of the deceased patients and only a few recovered patients developed leukocytosis, and one third of deceased patients and only few who recovered had procalcitonin above 0.5 ng/mL, indicating that a large proportion of deceased patients might have had secondary bacterial infection, which could be strongly associated with death. Deceased patients had persistent and more severe lymphopenia compared with recovered patients, suggesting that a cellular immune deficiency state was associated with poor prognosis. In addition, other common laboratory abnormalities in deceased patients included coagulation disorder (elevation of prothrombin time and D-dimer), impaired liver

and kidney function (mild or moderate elevation of alanine aminotransferase, aspartate aminotransferase, total bilirubin, alkaline phosphatase, y-glutamyl transpeptidase, blood urea nitrogen, and creatinine and frequent hypoalbuminaemia, haematuria, and albuminuria), electrolyte disturbance (hyperkalaemia and hypernatraemia), elevated inflammatory markers (high sensitivity C-reactive protein, ferritin, and erythrocyte sedimentation rate), and cytokine storm. Most notably, markedly higher concentrations of creatine kinase, lactate dehydrogenase, cardiac troponin I, and N-terminal pro-brain natriuretic peptide were seen in deceased patients than in recovered patients. Increase in cardiac troponin I and N-terminal pro-brain natriuretic peptide was much more frequent and significant than that in the recent reports, 89 likely owing to the relatively small number of deceased patients and more patients at earlier stages of the disease included in those studies. In the later stages of the disease, patients who die may develop pulmonary and extrapulmonary organ damage, including acute respiratory distress syndrome, type I respiratory failure, sepsis, acute cardiac injury, heart failure, acute kidney injury, hypoxic encephalopathy, shock, acidosis or alkalosis, disseminated intravascular coagulation, and acute liver injury, although the last two complications were less frequent. Development of respiratory, cardiac, and neurological complications is strongly associated with poor outcome in patients with covid-19. Patients with cardiovascular comorbidities were more likely to develop cardiac complications. Cardiac complications were frequent not only in deceased patients with cardiovascular comorbidities but also in those without cardiovascular comorbidities, suggesting that the high risk of cardiac complications in deceased patients could not be entirely ascribed to coexisting cardiovascular disease. Furthermore, in addition to acute respiratory distress syndrome and respiratory failure, acute cardiac injury and heart failure could be major factors contributing to the fatality risk of covid-19 regardless of history of previous cardiovascular disease. However, the pathological report of covid-19 associated with acute respiratory distress syndrome at present shows that pulmonary oedema with hyaline membrane formation in the lungs, but no obvious histological changes in heart tissue, was identified from one single case report.²⁰ This suggests that the underlying mechanism of cardiac injury needs further exploration. The median time from onset of symptoms to death in deceased patients was 16 days, and the median time from first symptoms to discharge in recovered patients was 26 days. In covid-19, the evolution of pulmonary and systemic inflammation in the first two weeks may determine the physiological progression (resolving or progressing) and

To date, no vaccine or specific antiviral treatment for covid-19 has proven to be effective, so supportive therapy that eases the symptoms and protects important organs may be most beneficial. In this study, for patients without second bacterial infection, empirical antimicrobial treatment seemed to be ineffective. Fewer deceased patients than recovered received antiviral monotherapy or combination antiviral therapy, as well as interferon α inhalation treatment. Considering the severe pneumonia and "cytokine storm" observed in deceased patients, more of these patients were given glucocorticoid therapy than recovered patients. Because of hypoxaemia, significantly more deceased patients than recovered received ventilation. We cannot conclude from this study which antivirals given at the right time would be beneficial, or whether steroid use would be beneficial, for patients with covid-19; further investigation is needed.

outcome of disease (death or survival).

Substantial similarities exist between covid-19 and severe acute respiratory syndrome, from the virus homology to the potential

origin, main transmission route (respiratory droplets), identified receptor (angiotensin converting enzyme 2), clinical manifestation, and disease dynamics. ²¹ Risk factors for severe covid-19 or severe acute respiratory syndrome outcomes are old age and comorbidities. Progression for patients with severe disease follows a similar pattern for both viruses. ²¹ Although both viruses can cause severe and even lethal lower respiratory tract infection and extrapulmonary manifestations, myocardial injury and heart failure are more frequently reported in patients with covid-19, indicating a unique pathophysiology. ²² These findings will alert clinicians to pay special attention not only to the development of respiratory dysfunction but also to the signs of cardiac complications.

Limitations of study

Our study has several limitations. Firstly, almost all the deceased patients were classified as being severely or critically ill, whereas a large proportion of recovered patients might be classified as having moderate disease. This patient setting reflects the real world situation where most confirmed cases are mild or moderate. Nevertheless, the high incidence of cardiac complications in deceased patients is of great importance, raising awareness of the need for earlier monitoring and cardiac supportive care. Secondly, nearly a third of deceased patients developed disorders of consciousness on admission, ranging from somnolence to deep coma, which may result in a loss of some information (particularly a detailed history and subjective symptoms). Additionally, some laboratory tests (for example, cardiac troponin I, N-terminal pro-brain natriuretic peptide, and arterial blood gas tests) were not done in all the patients, and missing data or important tests might lead to bias of clinical characteristics. Thirdly, the median length of hospital admission before death was about five days, information on the dynamic changes in laboratory variables in deceased patients was lacking, and the data collected for each patient on admission may have been from different disease stages. Therefore, further study is warranted to gain a better understanding of risk factors for and outcome of covid-19, which ultimately may help to guide efforts aimed at reducing the fatality rate.

Conclusions and policy implications

Certain patients with covid-19, particularly those with advanced age and hypertension, were in a critical condition on admission and progressed rapidly to death within two to three weeks from disease onset. SARS-Cov-2 infection can cause both pulmonary and systemic inflammation, leading to multi-organ dysfunction in high risk populations. In addition to acute respiratory distress syndrome and type I respiratory failure, acute cardiac injury and heart failure may also contribute to the critical illness state associated with high mortality, which highlights the importance of earlier cardiac monitoring and supportive care in such patients.

What is already known on this topic

As of 28 February 2020, more than 2858 people had died of coronavirus disease 2019 (covid-19), with the highest mortality rate of 4.5% in Wuhan, China

Severe acute respiratory syndrome coronavirus 2 (SARS-Cov-2) infection causes clusters of severe and even fatal pneumonia

Clinical characteristics of patients with covid-19 who died have not been fully elucidated yet

What this study adds

Certain patients with covid-19, particularly those with advanced age and hypertension, were in a critical condition on admission and progressed rapidly to death within two to three weeks from disease onset

SARS-Cov-2 infection can cause both pulmonary and systemic inflammation, leading to multi-organ dysfunction in high risk populations

In addition to acute respiratory distress syndrome and type I respiratory failure, acute cardiac injury and heart failure may also contribute to the critical illness state associated with high mortality

We thank all the patients and their families involved in this study, as well as many doctors, nurses, and civilians working together to fight against SARS-Cov-2.

Contributors: TC, DW, HLC, WMY, DLY, and GC contributed equally to this paper, as did KM, DX, HJY, HWW, and TW. QN designed the study, had full access to all data in the study, and takes responsibility for the integrity and accuracy of the data analysis. TC, DW, HC, WY, DY, and GC contributed to patient recruitment, data collection, data analysis, data interpretation, literature search, and writing of the manuscript. KM, DX, HY, HW, WG, JH, TW, and MH had roles in patient recruitment, data collection, and clinical management. JC, CD, XZ, SL, XL, and JZ had roles in the patient management, data collection, data analysis, and data interpretation. All authors contributed to data acquisition, data analysis, or data interpretation, and all reviewed and approved the final version of the manuscript. The corresponding author attests that all listed authors meet authorship criteria and that no others meeting the criteria have been omitted. QN is the guarantor. Funding: This work was funded by grants from the Tongji Hospital for Pilot Scheme Project and partly supported by the Chinese National Thirteenth Five Years Project in Science and Technology (2017ZX10202201), National Commission of Health, People's Republic of China. The research was designed, conducted, analysed, and interpreted by the authors entirely independently of the funding sources. Competing interests: All authors have completed the ICMJE uniform disclosure form at www.icmje.org/coi disclosure.pdf and declare: support from the Tongji Hospital for Pilot Scheme Project and the Chinese National Thirteenth Five Years Project in Science and Technology, National Commission of Health, People's Republic of China, for the submitted work; no financial relationships with any

Ethical approval: The case series was approved by the Institutional Review Board of Tongji Hospital, Tongji Medical College, Huazhong University of Science and Technology (TJ-C20200101). Written informed consent was waived owing to the rapid emergence of this infectious disease.

organisation that might have an interest in the submitted work in the previous three

years; no other relationships or activities that could appear to have influenced the

Data sharing: No additional data available.

submitted work

Transparency declaration: The lead author (the manuscript's guarantor) affirms that the manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

Dissemination to participants and related patient and public communities: No study participants were involved in the preparation of this article. The results of the article

will be summarised in media press releases from the Huazhong University of Science and Technology and presented at relevant conferences.

- Drosten C, Günther S, Preiser W, etal. Identification of a novel coronavirus in patients with severe acute respiratory syndrome. N Engl J Med 2003;348:1967-76. . 10.1056/NEJMoa030747 12690091
- Zaki AM, van Boheemen S, Bestebroer TM, Osterhaus AD, Fouchier RA. Isolation of a novel coronavirus from a man with pneumonia in Saudi Arabia. N Engl J Med 2012;367:1814-20. . 10.1056/NEJMoa1211721 23075143
- 3 Zhu N, Zhang D, Wang W, etal. China Novel Coronavirus Investigating and Research Team. A Novel Coronavirus from Patients with Pneumonia in China, 2019. N Engl J Med 2020;382:727-33. . 10.1056/NEJMoa2001017 31978945
- 4 Gralinski LE, Menachery VD. Return of the Coronavirus: 2019-nCoV. Viruses 2020;12:E135. . 10.3390/v12020135 31991541
- 5 Li Q, Guan X, Wu P, etal . Early transmission dynamics in Wuhan, China, of novel coronavirus-infected pneumonia. N Engl J Med 2020. . 10.1056/NEJMoa2001316 31995857
- 6 Chan JF, Yuan S, Kok KH, etal . A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster. Lancet 2020;395:514-23. . 10.1016/S0140-6736(20)30154-9 31986261
- 7 Zhou P, Yang XL, Wang XG, etal . A pneumonia outbreak associated with a new coronavirus of probable bat origin. *Nature* 2020;579:270-3. . 10.1038/s41586-020-2012-7 32015507
- 8 Huang C, Wang Y, Li X, etal . Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet* 2020;395:497-506. . 10.1016/S0140-6736(20)30183-5 31986264
- 9 Wang D, Hu B, Hu C, etal . Clinical characteristics of 138 hospitalized patients with 2019 novel coronavirus-infected pneumonia in Wuhan, China. *JAMA* 2020. . 10.1001/jama.2020.1585 32031570
- New coronavirus pneumonia prevention and control program (6th ed) (in Chinese). 2020. http://www.nhc.gov.cn/yzygj/s7653p/202002/8334a8326dd94d329df351d7da8aefc2/files/b218cfeb1bc54639af227f922bf6b817.pdf.
- 11 World Health Organization. Clinical management of severe acute respiratory infection when Novel coronavirus (nCoV) infection is suspected: interim guidance. 2020. https:// www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(ncov)-infection-is-suspected.
- 12 Khwaja A. KDIGO clinical practice guidelines for acute kidney injury. Nephron Clin Pract 2012;120:c179-84. 10.1159/000339789. 22890468
- 13 Januzzi JL, van Kimmenade R, Lainchbury J, etal . NT-proBNP testing for diagnosis and short-term prognosis in acute destabilized heart failure: an international pooled analysis of 1256 patients: the International Collaborative of NT-proBNP Study. Eur Heart J 2006;27:330-7. 10.1093/eur/hearti/ehi631 16293638
- 14 Wu Z, McGoogan JM. Characteristics of and Important Lessons From the Coronavirus Disease 2019 (COVID-19) Outbreak in China: Summary of a Report of 72 314 Cases From the Chinese Center for Disease Control and Prevention. JAMA 2020. 10.1001/jama.2020.2648 32091533
- 15 World Health Organization. Summary of probable SARS cases with onset of illness from 1 November 2002 to 31 July 2003. 2003. https://www.who.int/csr/sars/country/table2004_ 04_21/en/.
- 16 World Health Organization. Middle East respiratory syndrome coronavirus (MERS-CoV). 2019. https://www.who.int/emergencies/mers-cov/en/.
- 17 Chen N, Zhou M, Dong X, etal . Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. *Lancet* 2020;395:507-13. . 10.1016/S0140-6736(20)30211-7 32007143
- Novel Coronavirus Pneumonia Emergency Response Epidemiology Team. [The epidemiological characteristics of an outbreak of 2019 novel coronavirus diseases (COVID-19) in China]. Zhonghua Liu Xing Bing Xue Za Zhi 2020;41:145-51. 10.3760/cma_j.issn.0254-6450.2020.02.003. 32064853
- 19 Xu XW, Wu XX, Jiang XG, etal . Clinical findings in a group of patients infected with the 2019 novel coronavirus (SARS-Cov-2) outside of Wuhan, China: retrospective case series [correction in: BMJ2020;368:m792]. BMJ2020;368:m606. . 10.1136/bmj.m606 32075786
- 20 Xu Z, Shi L, Wang Y, etal . Pathological findings of COVID-19 associated with acute respiratory distress syndrome. *Lancet Respir Med* 2020;S2213-2600(20)30076-X. 10.1016/S2213-2600(20)30076-X. 32085846
- 21 Wilder-Smith A, Chiew CJ, Lee VJ. Can we contain the COVID-19 outbreak with the same measures as for SARS? Lancet Infect Dis 2020;S1473-3099(20)30129-8. 10.1016/S1473-3099(20)30129-8. 32145768
- 22 Liu CL, Lu YT, Peng MJ, etal. Clinical and laboratory features of severe acute respiratory syndrome vis-a-vis onset of fever. Chest 2004;126:509-17. . 10.1378/chest.126.2.509 15302738

Accepted: 17 03 2020

© Author(s) (or their employer(s)) 2019. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.http://creativecommons.org/licenses/by-nc/4.0/This is an Open Access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: http://creativecommons.org/licenses/by-nc/4.0/.

Tables

Table 1| Presenting characteristics of patients with coronavirus disease 2019 who died and recovered patients. Values are numbers (percentages) unless stated otherwise

	Total (n=274)	Deaths (n=113)	Recovered patients (n=161
Characteristics			
Median (IQR) age, years	62.0 (44.0-70.0)	68.0 (62.0-77.0)	51.0 (37.0-66.0)
<40 years	53 (19)	0 (0)	53 (33)
40-60 years	68 (25)	19 (17)	49 (30)
≥60 years	153 (56)	94 (83)	59 (37)
Sex:			
Female	103 (38)	30 (27)	73 (45)
Male	171 (62)	83 (73)	88 (55)
Huanan Seafood Market exposure	5 (2)	4 (4)	1 (1)
Close contact with confirmed case	47 (17)	14 (12)	33 (20)
Smoking history	19 (7)	9 (8)	10 (6)
Current smoker	12 (4)	7 (6)	5 (3)
Former smoker	7 (3)	2 (2)	5 (3)
Healthcare worker	19 (7)	1 (1)	18 (11)
Pregnancy	4 (1)	0 (0)	4 (2)
Comorbidities:	133 (49)	71 (63)	62 (39)
Hypertension	93 (34)	54 (48)	39 (24)
Diabetes	47 (17)	24 (21)	23 (14)
Cardiovascular disease	23 (8)	16 (14)	7 (4)
Chronic heart failure	1 (<1)	1 (1)	0 (0)
Chronic lung diseases	18 (7)	11 (10)	7 (4)
Malignancy	7 (3)	5 (4)	2 (1)
Hepatitis B virus surface antigen positivity	11 (4)	5 (4)	6 (4)
HIV infection	0 (0)	0 (0)	0 (0)
Cerebrovascular disease	4 (1)	4 (4)	0 (0)
Chronic kidney disease	4 (1)	4 (4)	1 (1)
Gastrointestinal diseases	3 (1)	1 (1)	2 (1)
Metabolic arthritis	4 (1)	1 (1)	3 (2)
Autoimmune disease	2 (1)	1 (1)	1 (1)
Signs and symptoms at disease onset			
-ever	249 (91)	104 (92)	145 (90)
Cough	185 (68)	79 (70)	106 (66)
-atigue	137 (50)	64 (57)	73 (45)
Anorexia	66 (24)	31 (27)	35 (22)
Myalgia	60 (22)	21 (19)	39 (24)
Dyspnoea	120 (44)	70 (62)	50 (31)
Chest tightness	103 (38)	55 (49)	48 (30)
Sputum production	83 (30)	35 (31)	48 (30)
Haemoptysis	7 (3)	4 (4)	3 (2)
Pharyngalgia	12 (4)	4 (4)	8 (5)
Diarrhoea	77 (28)	27 (24)	50 (31)
Nausea	24 (9)	8 (7)	16 (10)
Vomiting	16 (6)	6 (5)	10 (6)
Abdominal pain	19 (7)	6 (5)	13 (8)
Headache	31 (11)	11 (10)	20 (12)

Table 1 (continued)

	Total (n=274)	Deaths (n=113)	Recovered patients (n=161)
Dizziness	21 (8)	10 (9)	11 (7)
Median (IQR) time from onset of symptom to first outpatient visit, days	4.0 (1.0-7.0)	4.5 (0.0-7.0)	4.0 (1.0-6.0)
Median (IQR) time from onset of symptom to hospital admission, days	10.0 (7.0-12.0)	10.0 (7.0-13.0)	9.0 (6.0-12.0)
Median (IQR) time from onset of symptom to outcome, days	22.0 (16.8-27.3)	16.0 (12.0-20.0)	26.0 (21.8-29.0)
Median (IQR) time from hospital admission to outcome, days	13.0 (6.0-17.0)	5.0 (3.0-9.3)	16.0 (14.0-19.0)
Vital signs on admission			
Disorders of consciousness	26 (9)	25 (22)	1 (1)
Median (IQR) arterial pressure, mm Hg	129.0 (118.8-143.3)	137.0 (122.0-147.0)	125.0 (115.5-136.0)
<90 mm Hg	10 (4)	8 (7)	2 (1)
90-140 mm Hg	181 (66)	55 (49)	126 (78)
≥140 mm Hg	83 (30)	50 (44)	33 (20)
Median (IQR) heart rate, beat per minute	94.0 (80.0-108.0)	101.0 (82.0-111.0)	91.0 (79.0-104.0)
>100 beats per minute	104 (38)	56 (50)	48 (30)
Median (IQR) respiratory rate, breaths per minute	20.0 (20.0-24.0)	24.0 (20.0-30.0)	20.0 (20.0-21.0)
<24 breaths per minute	186 (68)	47 (42)	139 (86)
24-30 breaths per minute	53 (19)	36 (32)	17 (11)
≥30 breaths per minute	35 (13)	30 (27)	5 (3)
Median (IQR) percutaneous oxygen saturation, %	95.0 (85.0-98.0)	85.0 (75.0-94.0)	97.0 (95.3-98.0)
≤93%	91 (33)	72 (64)	19 (12)

IQR=interquartile range.

Table 2 | Laboratory findings on admission of patients with coronavirus disease 2019 who died and recovered patients. Values are numbers (percentages) unless stated otherwise

Laboratory finding (normal range)	Total (n=274)	Deaths (n=113)	Recovered patients (n=161)
Median (IQR) white blood cell count, ×10°/L (3.5-9.5)	5.9 (4.3-9.2)	10.2 (6.2-13.6)	5.0 (3.7-6.3)
<4×10 ⁹ /L	58 (21)	9 (8)	49 (30)
4-10×10 ⁹ /L	154 (56)	48 (42)	106 (66)
\geq 10×10 9 /L	62 (23)	56 (50)	6 (4)
Median (IQR) neutrophil count,×10 ⁹ /L (1.8-6.3)	4.4 (2.8-8.0)	9.0 (5.4-12.7)	3.2 (2.4-4.5)
>6.3×10 ⁹ /L	93 (34)	75 (66)	17 (11)
Median (IQR) lymphocyte count,×10 ⁹ /L (1.1-3.2)	0.8 (0.6-1.2)	0.6 (0.4-0.7)	1.0 (0.7-1.4)
≥1×10 ⁹ /L	95 (35)	10 (9)	85 (53)
0.8-1×10 ⁹ /L	44 (16)	16 (14)	28 (17)
0.5-0.8×10 ⁹ /L	83 (30)	43 (38)	40 (25)
<0.5×10 ⁹ /L	52 (19)	44 (39)	8 (5)
Median (IQR) monocyte count, ×10 ⁹ /L (0.1-0.6)	0.4 (0.3-0.5)	0.4 (0.2-0.6)	0.4 (0.3-0.5)
Median (IQR) haemoglobin, g/L (130-175)	128.0 (116.0-140.0)	128.0 (114.0-145.0)	128.0 (118.0-138.0)
Median (IQR) platelet count, ×10 ⁹ /L (125-350)	179.0 (133.0-235.0)	156.0 (111.8-219.3)	198.0 (160.0-256.0)
Median (IQR) alanine aminotransferase, U/L (≤41)	23.0 (15.0-38.0)	28.0 (18.0-47.0)	20.0 (14.8-32.0)
>41 U/L	60 (22)	30 (27)	30 (19)
Aspartate aminotransferase, U/L (≤40)	30.0 (22.0-46.0)	45.0 (31.0-67.0)	25.0 (20.0-33.3)
>40 U/L	84 (31)	59 (52)	25 (16)
Albumin, g/L (35.0-52.0)	33.9 (30.3–37.6)	30.1 (27.9-33.0)	36.3 (33.7-39.5)
<32 g/L	96 (35)	74 (65)	22 (14)
Median (IQR) total bilirubin, mmol/L (≤26)	9.6 (6.7-13.5)	12.6 (9.4-16.7)	8.4 (5.8-11.2)
Median (IQR) alkaline phosphatase, U/L (40-130)	68.0 (55.0-87.0)	76.0 (60.0-118.0)	64.0 (51.0-77.0)
Median (IQR) γ-glutamyl transpeptidase, U/L (10-71)	33.0 (21.0–51.0)	42.0 (27.0-70.0)	28.0 (19.0-45.3)
Median (IQR) triglycerides, mmol/L (<1.7)	1.3 (1.0-2.0)	1.8 (1.2-2.2)	1.2 (1.0-1.6)
Median (IQR) potassium, mmol/L (3.5-5.1)	4.1 (3.8-4.6)	4.3 (3.9-4.9)	4.1 (3.8-4.4)
<3.5 mmol/L	31 (11)	14 (12)	17 (11)
3.5-5.1 mmol/L	211 (77)	74 (65)	137 (85)
>5.1 mmol/L	32 (12)	25 (22)	7 (4)
Median (IQR) sodium, mmol/L (136-145)	138.7 (136.3-142.1)	138.4 (135.8-143.9)	139.1 (136.6-141.6)
>145 mmol/L	23 (8)	20 (18)	3 (2)
Median (IQR) blood urea nitrogen, mmol/L (3.1-8.0)	4.9 (3.5-7.9)	8.4 (5.7-12.6)	4.0 (3.0-5.1)
Median (IQR) creatinine, µmol/L (59-104)	76.0 (58.0-94.0)	88.0 (66.0-114.0)	66.0 (54.0-84.0)
Median (IQR) creatine kinase, U/L (≤190)	109.0 (53.5-188.0)	189.0 (94.5-374.5)	84.0 (50.8-140.3)
Median (IQR) lactate dehydrogenase, U/L (135 to 225)	321.5 (249.8-510.5)	564.5 (431.0-715.8)	268.0 (214.3-316.5)
>350 U/L	116 (42)	93 (82)	23 (14)
Median (IQR) hypersensitive cardiac troponin I, pg/mL (≤15.6)	8.7 (2.9-33.6)	40.8 (14.7-157.8)	3.3 (1.9-7.0)
>15.6 pg/mL	83/203 (41)	68/94 (72)	15/109 (14)
Median (IQR) N-terminal pro-brain natriuretic peptide, pg/mL (<285)	267.0 (48.0-821.0)	800.0 (389.8-1817.5)	72.0 (20.0-185.0)
≥285 pg/mL	85/173 (49)	68/80 (85)	17/93 (18)
Median (IQR) prothrombin time, seconds (11.5-14.5)	14.3 (13.4-15.4)	15.5 (14.4-17.3)	13.9 (13.2-14.4)
Median (IQR) international normalised ratio (0.8-1.2)	1.1 (1.0-1.2)	1.2 (1.1-1.4)	1.1 (1.0-1.1)
Median (IQR) activated partial thromboplastin time, seconds (29.0- 42.0)	30.8 (36.6-44.3)	40.6 (35.6-46.9)	41.0 (36.9-44.0)
Wedian (IQR) D-dimer, µg/mL (<0.5)	1.1 (0.5-3.2)	4.6 (1.3-21.0)	0.6 (0.3-1.3)
>21 µg/mL	37/247 (15)	34/97 (35)	3/150 (2)
Median (IQR) procalcitonin, ng/mL (0.02 to 0.05)	0.09 (0.04-0.23)	0.33 (0.14-0.65)	0.05 (0.03-0.08)
<0.05 ng/mL	71/236 (30)	1/96 (1)	70/140 (50)
	1 1/200 (00)	1/30 (1)	, U/ 1+U (UU)
0.05-0.5 ng/mL	127/236 (54)	60/96 (63)	67/140 (48)

Table 2 (continued)

Laboratory finding (normal range)	Total (n=274)	Deaths (n=113)	Recovered patients (n=161)
≥2 ng/mL	8/236 (3)	8/96 (8)	0/140 (0)
Median (IQR) high sensitivity C-reactive protein, mg/L (<1)	53.4 (18.6-113.0)	113.0 (69.1-168.4)	26.2 (8.7-55.8)
>100 mg/L	80/243 (33)	59/98 (60)	21/145 (14)
Median (IQR) ferritin, µg/L (30-400)	669.7 (388.8-1494.6)	1418.3 (915.4-2236.2)	481.2 (265.1-871.5)
Median (IQR) erythrocyte sedimentation rate, mm/h (0-15)	32.5 (17.3-53.8)	38.5 (20.5-62.8)	28.0 (15.8-45.0)
Median (IQR) thyroid stimulating hormone, mIU/mL (0.27-4.20)	1.2 (0.5-2.0)	0.7 (0.3-1.4)	1.4 (0.7-2.2)
Median (IQR) free triiodothyronine, pmol/L (3.1-6.8)	3.9 (3.1-4.6)	2.8 (2.5-3.1)	4.3 (3.7-4.8)
Median (IQR) free thyroxin, pmol/L (12-22)	17.7 (14.9-19.0)	15.8 (13.2-18.6)	18.3 (15.7-19.2)
Median (IQR) immunoglobulin A, g/L (0.82-4.53)	2.2 (1.6-2.8)	2.4 (1.6-3.3)	2.1 (1.6-2.8)
Median (IQR) immunoglobulin G, g/L (7.51-15.6)	11.5 (9.3-13.3)	12.3 (10.1-14.5)	11.3 (9.3-13.0)
Median (IQR) immunoglobulin M, g/L (0.46-3.04)	1.0 (0.7-1.4)	1.0 (0.7-1.4)	1.0 (0.7-1.4)
Median (IQR) complement 3, g/L (0.65-1.39)	0.9 (0.8-1.4)	0.8 (0.6-0.9)	0.9 (0.8-1.0)
Median (IQR) complement 4, g/L (0.16-0.38)	0.2 (0.2-0.3)	0.2 (0.2-0.3)	0.3 (0.2-0.3)
Interleukin 1β ≥5pg/mL	18/163 (11.0)	5/53 (9)	13/110 (12)
Median (IQR) interleukin 2 receptor, U/mL (223-710)	713.0 (502.5-1111.0)	1189.0 (901.0-1781.0)	566.5 (448.0-858.3)
≥710 U/L	84/163 (52)	43/53 (81)	41/110 (37)
Median (IQR) interleukin 6, pg/mL (<7)	22.0 (6.1-51.8)	72.0 (35.6-146.8)	13.0 (4.0-26.2)
≥7 pg/mL	119/163 (73)	53/53 (100)	66/110 (60)
Median (IQR) interleukin 8, pg/mL (<62)	16.6 (9.2-32.6)	28.3 (18.7-72.1)	11.4 (7.8-20.2)
≥62 pg/mL	24/163 (15)	15/53 (28)	9/110 (8)
Median (IQR) interleukin 10, pg/mL (<9.1)	6.7 (5.0-12.2)	12.8 (8.8-19.6)	5.0 (5.0-8.4)
≥9.2 pg/mL	58/163 (36)	37/53 (70)	21/110 (19)
Median (IQR) tumour necrosis factor α, pg/mL (<8.1)	8.6 (7.0-12.2)	11.8 (8.6-17.6)	7.9 (6.7-9.6)
≥8.1 pg/mL	93/163 (57)	41/53 (77)	52/110 (47)
Positive urinary protein	100/166 (60)	42/49 (86)	58/117(50)
Positive urinary occult blood	84/166 (51)	40/49 (82)	44/117 (38)
Bilateral involvement on chest computed tomography scan	265 (97)	113 (100)	152 (94)

Table 3| Blood gas analysis of patients with coronavirus disease 2019 who died and recovered patients. Values are numbers (percentages) unless stated otherwise

Blood gas characteristics (normal range)	Total (n=67)	Deaths (n=35)	Recovered patients (n=32)	
Median (IQR) pH (7.35-7.45)	7.41 (7.39-7.46)	7.43 (7.40-7.46)	7.40 (7.39-7.42)	
<7.35	8 (12)	5 (14)	3 (9)	
7.35-7.45	40 (60)	16 (46)	24 (75)	
≥7.45	19 (28)	14 (40)	5 (16)	
Median (IQR) arterial partial pressure of oxygen, mm Hg (80-100)	82.1 (59.0-128.5)	59.2 (45.4-78.6)	121.0 (90.6-163.3)	
<60 mm Hg	18/67 (27)	18/35 (51)	0/32 (0)	
Median (IQR) partial pressure of oxygen:fraction of inspired oxygen (400-500)	193.6 (103.2-341.6)	105.1 (76.9-169.4)	350.0 (222.0-417.0)	
≤100	16/67 (24)	16/35 (46)	0/32 (0)	
100-300	33/67 (49)	19/35 (54)	14/32 (44)	
>300	18/67 (27)	0/35 (0)	18/32 (56)	
Median (IQR) partial pressure of carbon dioxide, mm Hg (35-45)	35.6 (30.2-39.8)	30.9 (28.9-36.0)	37.5 (35.0-41.3)	
<35 mm Hg	32/67 (48)	24/35 (69)	8/32 (25)	
>50 mm Hg	3/67 (4)	2/35 (6)	1/32 (3)	
Median (IQR) actual bicarbonate, mmol/L (21.0-28.0)	22.2 (19.5-24.7)	20.5 (18.2-24.2)	22.9 (21.8-25.2)	
Median (IQR) standard bicarbonate, mmol/L (21.0-25.0)	23.2 (21.1-25.0)	22.6 (19.8-24.5)	23.9 (22.4-25.0)	
Median (IQR) base excess of blood, mmol/L (-3.0-3.0)	-1.2 (-3.6-0.7)	-2.1 (-4.8-0.8)	-0.6 (-2.4-0.6)	
Median (IQR) base excess of extracellular fluid, mmol/L (-3.0-3.0)	-1.5 (-4.2-0.9)	-2.8 (-5.7-0.9)	-1.3 (-2.4-0.8)	
Median (IQR) total carbon dioxide, mmol/L (24.0-32.0)	20.3 (18.0-22.8)	18.2 (16.3-21.4)	21.4 (20.0-23.9)	

Table 4| Complications and treatments of patients with coronavirus disease 2019 who died and recovered patients. Values are numbers (percentages)

	Total (n=274)	Deaths (n=113)	Recovered patients (n=161)
Complications			
Acute respiratory distress syndrome	196 (72)	113 (100)	83 (52)
Type I respiratory failure	18/67 (27)	18/35 (51)	0/32 (0)
Acute cardiac injury	89/203 (44)	72/94 (77)	18/109 (17)
With history of hypertension or cardiovascular disease	47/77 (61)	37/48 (77)	11/30 (37)
Without history of hypertension or cardiovascular disease	42/126 (33)	35/46 (76)	7/80 (9)
Heart failure	43/176 (24)	41/83 (49)	3/94 (3)
With history of hypertension or cardiovascular disease	23/67 (34)	21/42 (50)	2/25 (8)
Without history of hypertension or cardiovascular disease	21/109 (19)	20/41 (49)	1/68 (1)
Hypoxic encephalopathy	24 (9)	23 (20)	1 (1)
Sepsis	179 (65)	113 (100)	66 (41)
Acidosis	8/67 (12)	5/35 (14)	3/32 (9)
Alkalosis	19/67 (28)	14/35 (40)	5/32 (16)
Acute kidney injury	29 (11)	28 (25)	1 (1)
Disseminated intravascular coagulation	21 (8)	19 (17)	2 (1)
Hyperkalaemia	62 (23)	42 (37)	22 (14)
Shock	46 (17)	46 (41)	0 (0)
Acute liver injury	13 (5)	10 (9)	3 (2)
Gastrointestinal bleeding	1 (<1)	1 (1)	0 (0)
Treatment			
Antiviral therapy	236 (86)	89 (79)	147 (91)
Glucocorticoid therapy	217 (79)	99 (88)	118 (73)
Antibiotics	249 (91)	105 (93)	144 (89)
Intravenous immunoglobulin therapy	54 (20)	44 (39)	59 (37)
Interferon inhalation	89 (32)	25 (22)	64 (40)
Oxygen treatment	251 (92)	113 (100)	138 (86)
High flow nasal cannula	85 (31)	77 (68)	8 (5)
Mechanical ventilation	119 (43)	93 (82)	26 (16)
Non-invasive	102 (37)	76 (67)	26 (16)
Invasive	17 (6)	17 (15)	0 (0)
Continuous renal replacement therapy	3 (1)	3 (3)	0 (0)
Extracorporeal membrane oxygenation	1 (<1)	1 (1)	0 (0)

Figure

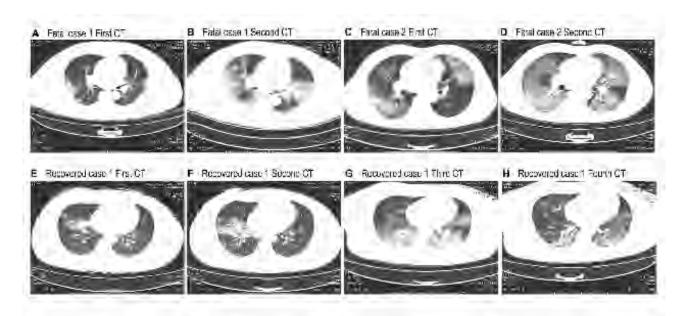


Fig 1 Representative chest computed tomographic images of patients with covid-19 who died and patients who recovered. A-D are chest computed tomograms showing axial view lung window from two deceased patients. Case 1 was a 57 year old women, and case 2 was a 53 year old man. E-H are chest computed tomograms images from a 33 year old woman who recovered. A: image obtained on day 10 after symptom onset shows multiple ground glass opacities and consolidation in bilateral lungs. B: image obtained on day 18 after symptom onset shows progressive multiple ground glass opacities and consolidation in bilateral lungs. C: image obtained on day 9 after symptom onset shows multiple ground glass opacities in bilateral lungs and solid nodule in right lower lobe. D: image obtained on day 13 after symptom onset shows progressive ground glass opacities in bilateral lungs and decreased density of solid nodule in right lower lobe. E: image obtained on day 4 after symptom onset shows right middle lobe and lower lobe consolidation and ground glass opacities. F: image obtained on day 7 after symptom onset shows progressive right middle lobe and lower lobe consolidation and ground glass opacities. G: image obtained on day 11 after symptom onset shows progressive multiple ground glass opacities and consolidation in bilateral lungs and decreased density and range of right middle lobe consolidation. H: after 17 days' therapy, follow-up computed tomograms show ground glass opacities, and consolidation are obviously resolved in bilateral lungs

Exhibit 55



Pharmacy Readiness for Coronavirus Disease 2019 (COVID-19)

RECOMMENDATIONS FOR FEDERAL POLICYMAKERS

March 2020

Executive Summary

In the United States, our drug supply chain and clinical infrastructure are not generally the subject of deep concern. However, a public health emergency, whether a natural disaster or an infectious disease outbreak, can quickly expose the weak links in our healthcare system. The coronavirus disease 2019 (COVID-19) outbreak highlights potential vulnerabilities in both our drug supply chain and our clinical infrastructure, including the availability of adequate clinician resources.

A. Protect Our Supply Chain from Shortages

The new outbreak highlights the need for the federal government to safeguard our drug supply, to improve transparency in the supply chain, and to ensure contingency plans are in place to mitigate disruptions that can result in drug shortages. However, there are measures the government can take to help mitigate these threats and increase transparency. The following commonsense solutions would enable safer, more consistent drug manufacturing:

- Require manufacturers to provide the Food and Drug Administration (FDA) with more information on the causes of shortages and their expected durations and allow public reporting of this information
- Require manufacturers to publicly disclose manufacturing sites, including use of contract manufacturers, and sources of active pharmaceutical ingredients (APIs)
- Require manufacturers to conduct periodic risk assessments of their supply chains and establish contingency plans to maintain the supply of a drug in the event of a manufacturing disruption
- Require the Department of Health & Human Services (HHS) and the Department of Homeland Security (DHS) to conduct a risk assessment of national security threats associated with the manufacturing and distribution of critical drugs
- Incentivize domestic, advanced manufacturing capacity

B. Ensure Medicare and Medicaid Beneficiaries Have Adequate Access to Pharmacist Care

Ensuring we have sufficient clinician resources to respond to a public health emergency is as essential as protecting our supply of drugs, protective equipment, and other supplies. The following policy recommendations will ensure better access to care during an outbreak, particularly for Medicare and Medicaid beneficiaries:

- Clarify Medicare supervision requirements for pharmacists to align with their state scope of practice
- Clarify Medicare and Medicaid authority to reimburse clinical services provided by pharmacists acting within their state scope of practice
- Clarify Medicare authority to support pharmacy residency programs, including specialized training in infectious disease



C. Provide Resources to Support Clinician Readiness and Resilience

We recommend that Congress provide funding to address the following areas needed to support clinician readiness and resilience for COVID-19 response:

- Infectious disease and emergency preparedness continuing education
- Investment in infectious disease and emergency preparedness clinical education
- Clinician burnout, well-being, and resilience
- Clinician and first responder family support
- Pharmacy readiness assessment

D. Address Emerging Risk Areas

In addition to the concerns we have detailed above, we urge policymakers to consider emerging risk areas that have not received sufficient public consideration:

- Shortage of medication for supportive care
- Shortages of personal protective equipment (PPE) and sterile products
- Hoarding of medical supplies
- False claims and misinformation



Pharmacy Readiness for Coronavirus Disease 2019 (COVID-19)

Recommendations for Federal Policymakers

As the number of confirmed cases and deaths attributed to COVID-19 continue to climb worldwide, policymakers should act quickly to respond.

In the United States, our drug supply chain and clinical infrastructure are not generally the subject of deep concern. However, a public health emergency, whether a natural disaster or an infectious disease outbreak, can quickly expose the weak links in our healthcare system. The COVID-19 outbreak highlights potential glaring vulnerabilities in both our drug supply chain and our clinical infrastructure, including the availability of adequate clinician resources.

Federal policymakers should take the following steps to **ENSURE THE SECURITY OF OUR DRUG SUPPLY CHAIN** and **READINESS OF OUR CLINICAL PHARMACY INFRASTRUCTURE** to respond to outbreaks such as COVID-19:

A. Protect Our Drug Supply Chain from Shortages

This outbreak highlights the need for the federal government to safeguard our drug supply, to improve transparency in the production chain, and to ensure contingency plans are in place to mitigate disruptions. China produces a large portion of the world's active pharmaceutical ingredients (APIs) and finished pharmaceuticals. More than 80% of APIs are produced outside the United States, highlighting the magnitude of the potential risk.¹ Manufacturers have not disclosed which specific drugs are at risk of shortages. This lack of transparency jeopardizes FDA's ability to respond to shortages and exacerbates shortages by causing providers to guess which essential medical supplies might be at risk.

Deprived of clear information, we do not actually know how this outbreak could impact global drug supplies. Without more transparency around drug origins, it is impossible to effectively and accurately plan for possible emergency situations involving the supply chain. As a result, our drug supply chain is left vulnerable, and this vulnerability can result in harm to patients and unsustainable burdens on healthcare providers and the entire healthcare system.

There are reasonable measures the government can take to help mitigate these threats and increase transparency. ASHP believes there are commonsense solutions that would enable safer, more consistent drug manufacturing:

¹ Government Accountability Office, Drug Safety: FDA Has Improved Its Foreign Drug Inspection Program, But Needs to Assess the Effectiveness and Staffing of Its Foreign Offices, GAO-17-143. www.gao.gov/assets/690/681689.pdf.



 Require manufacturers to provide FDA with more information on the causes of shortages and their expected durations and allow public reporting of this information²

FDA has already indicated that at least 20 drugs are at risk of shortage and one is confirmed to be in shortage as a result of COVID-19, but the identity of these products is unknown to purchasers.³ It is likely that clinicians will also face a shortage of PPE, particularly masks, if there is a significant coronavirus outbreak. However, there is little visibility into the actual amount of supply available. Unless all manufacturers with products at risk of shortage are required to disclose this information, we are likely to see hoarding of essential medical supplies that could further magnify shortages.

Current law requires manufacturers to notify FDA when there is a discontinuance or interruption in manufacturing. However, manufacturers are not required to disclose the cause of the interruption or provide a time frame for resolution. Some manufacturers do this voluntarily, but inconsistent information hinders FDA's ability to mitigate shortages. Title X of the Food and Drug Administration Safety and Innovation Act should be strengthened to require these notifications be published in the FDA drug shortages database and include the cause of the interruption and a time frame to address the shortage. This requirement should also apply to medical supplies such as masks, syringes, and other devices necessary to safely prepare and administer drugs. Shortages of these items have the potential to cripple the U.S. healthcare system.

• Require manufacturers to publicly disclose manufacturing sites, including use of contract manufacturers, and sources of APIs²

FDA and drug purchasers, such as hospitals and pharmacies, lack access to key information that could assist in preparing for regional disasters, geopolitical instability, and manufacturing problems at specific sites. The Food, Drug, and Cosmetic Act (FDCA) should be strengthened to require manufacturers to publicly disclose the location of drug production, including when a contract manufacturer is used, and sources of APIs. This requirement should also apply to manufacturers of masks, syringes, and other devices that are necessary to safely prepare and administer drugs. FDA and purchasers can use this information to more accurately assess the scope and duration of a shortage, identify alternative sources of supply, and identify potential supply disruption for related products, including associated medical devices.

• Require manufacturers to conduct periodic risk assessments of their supply chains and establish contingency plans to maintain supply of a drug in the event of a manufacturing disruption²

Manufacturers cannot always predict when a shortage will occur. Manufacturing disruptions can be caused by natural disasters, quality issues, or business decisions, which may include discontinuation of a product. Such shortages negatively impact patient safety and access to care. The FDCA should be amended to include a requirement that manufacturers conduct periodic risk assessments of their supply chains and maintain business continuity contingency plans for future supply disruptions that are reviewed during FDA plant inspections.



² ASHP, along with our partners, the American Hospital Association, American Society of Clinical Oncology, and the American Society of Anesthesiologists, has developed legislative objectives based on the 2017 Drug Shortages Roundtable and the 2018 Summit on Drug Shortages to Examine Impact on National Security and Health Care Infrastructure.

³ U.S. Food and Drug Administration (FDA). FDA Statement: Coronavirus (COVID-19) Supply Chain Update. Feb. 27, 2020. www.fda.gov/news-events/press-announcements/coronavirus-covid-19-supply-chain-update.

 Require HHS and DHS to conduct a risk assessment of national security threats associated with manufacturing and distribution of critical drugs²

Relying predominantly on other countries for necessary ingredients to manufacture critical drugs, APIs, and devices required to safely prepare and administer drugs presents a potential threat to the stability of the U.S. drug supply. In addition to drugs, medical devices necessary for the preparation and administration of drugs are a critical part of healthcare infrastructure. Items such as PPE, syringes, needles, and tubing for administration of intravenous drugs have been affected by shortages. To enhance transparency, HHS and DHS should conduct a review of priority risks in pharmaceutical and device manufacturing and distribution systems and identify ways the U.S. government can support preparedness and resilience of critical infrastructure in the pharmaceutical sector.

We also urge the federal government to establish a standing forum for these agencies to engage the private sector, including pharmacists, hospitals, physicians, and manufacturers, to mitigate drug supply chain and clinical infrastructure risks. Working together – not in isolation – to share information and solutions is vital to our success in responding to COVID-19 and building a more resilient system in anticipation of future threats.

Incentivize domestic, advanced manufacturing capacity

FDA has identified advanced manufacturing as a potential alternative to traditional batch manufacturing, which could improve the quality and resilience of drug production.⁴ Investment in domestic, advanced manufacturing, in the form of tax incentives or grants, would reduce our dependence on highly concentrated foreign sources of drug production and would allow manufacturers to more rapidly reallocate manufacturing capacity to products in shortage than is possible through traditional production. Making use of advanced manufacturing technology saves time, reduces the potential for error, and enables a nimbler approach to changing market demands.

B. Ensure Medicare and Medicaid Beneficiaries Have Adequate Access to Pharmacist Care

Pharmacists practicing in hospitals, clinics, physician offices, and community settings are trained to treat infectious diseases and can significantly expand access to care if federal barriers are removed. Pharmacists receive a clinically based doctor of pharmacy degree, and many also complete postgraduate residencies and become board certified in areas of specialty care, including infectious disease. Each year, nearly 4,000 pharmacists complete a pharmacy residency and 1,300 complete an additional residency in a clinical specialty. There are currently more than 800 board-certified infectious disease pharmacists nationwide.

In many communities, pharmacists are the most accessible healthcare providers and the first touchpoint of patient engagement with the healthcare system. In fact, 90% of all Americans live within five miles of a community pharmacy.⁵ In rural and underserved communities and in communities experiencing physician shortages, pharmacists may be the only healthcare provider that is immediately available to patients.

Many states have recognized the training and expertise of pharmacists as clinicians and clarified their state pharmacy practice laws to authorize pharmacists to provide patient care services that will be essential during the response to COVID-19. These services include ordering and administering immunizations, ordering and interpreting point-of-care tests, and initiating medications, such as antiviral therapies that must be initiated in

⁵ See NCPDP Pharmacy File, ArcGIS Census Tract File. NACDS Economics Department.



⁴ U.S. Food and Drug Administration (FDA). FDA Statement: FDA's modern approach to advanced pharmaceutical manufacturing. Feb. 26, 2019. www.fda.gov/news-events/press-announcements/fda-statement-fdas-modern-approach-advanced-pharmaceutical-manufacturing.

a limited time from exposure in order to be effective. Some states have also ensured that their residents will have access to these services by clarifying that pharmacists should be reimbursed by health plans, like other providers, when they provide these services.

Forty-nine states and the District of Columbia grant pharmacists the ability to practice collaboratively in some capacity with physicians.⁶ The Centers for Medicare & Medicaid Services (CMS) should ensure that its own regulations do not create a barrier to care that is authorized by state pharmacy practice laws.

To ensure that patients can access pharmacist care during a coronavirus outbreak or other public health emergencies, CMS should implement the following policies:

• Clarify Medicare supervision requirements for pharmacists to align with their state scope of practice

To avoid barriers to care for the Medicare population, CMS should provide flexibility in its pharmacist supervision and services requirements so they align with the pharmacy practice law of any state in which a beneficiary is receiving care. This flexibility is necessary to ensure that federal regulations do not prevent pharmacists from providing the same level of care to Medicare beneficiaries that they provide to other patients in the state.

 Clarify Medicare and Medicaid authority to reimburse clinical services provided by pharmacists acting within their state scope of practice

To avoid barriers to care for the Medicare and Medicaid populations, particularly those in rural and underserved communities that are experiencing provider shortages, Congress should clarify that Medicare, Medicare Advantage, and Medicaid plans should reimburse clinical services provided by pharmacists acting within their state's scope of practice.

For example, point-of-care testing plays a critical role in the identification and treatment of infectious diseases. Increasing access to testing may help reduce disease spread and improve outcomes through early detection. Recent studies indicate that pharmacist-provided point-of-care testing can increase early identification of infectious disease,⁷ particularly for patients who are not able to see a primary care provider – a group that is likely to grow during a coronavirus outbreak. Further, pharmacist initiation of time-sensitive antiviral therapy can speed care access, improve outcomes and reduce disease spread.⁸ Similarly, once a vaccine becomes available, research shows that pharmacists can significantly improve immunization rates.⁹ To ensure that Medicare and Medicaid beneficiaries can be diagnosed and treated quickly, CMS should reimburse pharmacists for services related to the treatment of infectious diseases, when they are acting within their scope of practice, just as CMS would for other healthcare providers. Failure to do so will leave Medicare and Medicaid beneficiaries with less access to healthcare services than other patients.

⁹ See e.g., N. Hamm, "Pharmacists Increase Vaccination Rates," Drug Topics (Aug. 2017), available at www.drugtopics.com/latest/pharmacists-in-crease-vaccination-rates; T. Steyer, et. al, "The Role of Pharmacists in the Delivery of Influenza Vaccines," Vaccines, Vol. 22 (Feb. 2004), available at www.sciencedirect.com/science/article/pii/S0264410X0300673X.



⁶ Centers for Disease Control and Prevention, "Advancing Team-Based Care Through Collaborative Practice Agreements" (2017), www.cdc.gov/dhdsp/pubs/docs/CPA-Team-Based-Care.pdf.

⁷ M. Klepser, et al. "Effectiveness of a Pharmacist-Physician Collaborative Program to Manage Influenza-like Illness," .J. Am. Pharm. Assoc. Vol. 56 (2016), available at www.ncbi.nlm.nih.gov/pubmed/26802915.

⁸ Id.; See also See E. Burley et. al, "Opportunities for Pharmacists to Improve Access to Primary Care Through the Use of CLIA-Waived Tests" (2014), available at www.michiganpharmacists.org/Portals/0/resources/poctesting/p

 Clarify Medicare authority to support pharmacy residency programs, including specialized training in infectious disease

Rigorous clinician education, including for pharmacists with specialized training to manage infectious disease medication regimens, is the bedrock of a highly trained workforce that is prepared to manage public health emergencies. Unfortunately, Medicare support for these programs is uncertain. CMS should clarify that experts in topics such as infectious disease, who serve on the faculty of educational institutions such as medical schools and schools of pharmacy, can provide training to residents in pharmacy and allied health training programs without jeopardizing Medicare funding of programs.

CMS should also clarify that residents in these training programs may participate in clinical rotations at clinical sites operated by other hospitals or health systems, without jeopardizing Medicare funding, if those rotations are appropriate to strengthen resident training in clinical specialties such as infectious disease.

CMS should further clarify that specialized pharmacy residency programs operated by hospitals or health systems in clinical specialties, such as infectious disease, are eligible for Medicare funding. The current system of relying on community resources to fund these programs is inadequate to maintain a pipeline of infectious disease experts necessary to manage specialized medication regimens during a medical surge event, such as a COVID-19 outbreak.

C. Provide Resources to Support Clinician Readiness and Resilience

We urge Congress to provide funding to support clinician readiness and resilience during a COVID-19 response. At minimum, these programs should focus on increasing preparedness and enhancing the pipeline of infectious disease and public health experts. For instance, programs should center on the following:

- Infectious disease and emergency preparedness continuing education: Congress should provide
 funding for immediate development and dissemination of clinician continuing education and certificate
 training programs on infectious disease and emergency preparedness, including for pharmacists. Such
 programs should harness the resources and reach of professional organizations, thereby aiding federal
 and state public health authorities in disaster response.
- Investment in infectious disease and emergency preparedness clinical education: Congress should provide funding to enhance and expand pharmacy, allied health, and medical residency programs and other advanced clinician educational programs focused on infectious disease and emergency preparedness.
- Clinician burnout, well-being, and resilience: Congress should provide funding to combat clinician burnout and to support research regarding clinician resilience and well-being. Public health emergencies can create intense strain on our healthcare system, which extends to our clinicians, including pharmacists. Clinicians already face high levels of burnout, 10 and public health emergencies are likely to exacerbate this, adding to the strain on our healthcare system.
- Clinician and first responder family support: Congress should provide funding to support the families of clinicians, including pharmacists, and first responders during a pandemic or natural disaster. Given the demands placed on clinicians and first responders in these situations, adequate resources should be

¹⁰ Agency for Healthcare Research and Quality, "Physician Burnout," available at www.ahrq.gov/prevention/clinician/ahrq-works/burnout/index.html; See also M. Durham, P. Bush, A. Ball, "Evidence of Burnout in Health-System Pharmacists," J. AM. HEALTH-SYST. PHARM., Vol. 75 (Dec. 2018) www.ahrq.gov/prevention/clinician/ahrq-works/burnout/index.html; See also M. Durham, P. Bush, A. Ball, "Evidence of Burnout in Health-System Pharmacists," J. AM. HEALTH-SYST. PHARM., Vol. 75 (Dec. 2018) academic.oup.com/ajhp/article-abstract/75/23_Supplement_4/S93/5237667?redirectedFrom=fulltext.



available for those who are caregivers, to ensure they can access backup or emergency child and elder care, at minimum, so they can focus on providing the best possible care to patients.

• **Pharmacy readiness assessment:** Congress should provide funding to provide tools for health systems to assess their readiness to respond to medical surge events and resources to address identified gaps, including disruptions to drug supplies, pharmacy staffing, and ongoing hospital operations.

D. Address Emerging Risk Areas

In addition to the concerns we have detailed above, we would also encourage policymakers to plan for emerging risk areas that have not received sufficient public consideration:

- Shortages of medications for supportive care: As outlined above, we remain concerned about disruptions to supply generally, but we are also concerned about whether the market can support sudden steep increases to orders for certain supportive medications. These would include intravenous fluids, pain medications, anti-inflammatories, and other treatments essential to managing patients with COVID-19.
- Shortages of PPE and sterile products: The danger of PPE shortages has been documented, but such equipment is also necessary in the compounding and preparation of sterile products. If PPE becomes unavailable for clinicians generally, this may have cascade effects on the safe preparation of medications. If sterile procedures for pharmacist preparation of medications (e.g., USP chapters <797>, <800>) cannot be followed because of a lack of PPE, certain medications may become unavailable for patient care. Similarly, if PPE is not available in other countries, this could impact the production of drugs.
- Hoarding of medical supplies: Hospital and clinician preparation for a COVID-19 outbreak necessarily includes ensuring adequate supplies. However, in medical surge events, the risk of hoarding increases. As a result, providers may be more tempted to rely on secondary wholesalers (e.g., gray market) for access to critical medical products, thereby introducing new dangers into the supply chain. The Federal Trade Commission (FTC) and other agencies should exercise enhanced market oversight of price gouging and other practices that take advantage of heightened demand for supplies during a COVID-19 outbreak.
- False claims/misinformation: We applaud FDA and FTC for their efforts to stem false and misleading claims about products purporting to treat or prevent COVID-19. We urge the agencies to address such instances aggressively. Further, we encourage the agencies to report bad actors to healthcare providers and, concurrently, to provide clinicians and the public a streamlined reporting method to offer information to the agencies about potential violations.

Additional resources, including ASHP's Pharmacy Competency Assessment Center emergency preparedness and infection prevention modules, are available in the COVID-19 resource center at ashp.org/coronavirus.

For more information, please contact:

Doug Huynh, Director, Federal Legislative Affairs, at DHuynh@ashp.org or 301-664-8806.



Exhibit 56

https://www.mdjonline.com/news/sterigenics-ceo-cobb-facility-should-reopen-could-help-incoronavirus/article_ac5fe9a8-6853-11ea-a6ef-9b56ff1da342.html

CENTERPIECE

Sterigenics CEO: Cobb facility should reopen, could help in coronavirus fight

By Thomas Hartwell thartwell@mdjonline.com Mar 17, 2020



Lisa Cupid



Erick Allen



Sterigenics' medical sterilization plant in Cobb County. Rosie Manins

As the coronavirus causes widespread shortages of medical supplies such as protective gowns and masks, Sterigenics CEO Phil McNabb is asking Cobb County to expedite the process of reopening his company's medical equipment sterilization facility in Cobb.

The Sterigenics plant located just north and west of the Chattahoochee River near Smyrna shut down in late August to expedite emissions improvements on the facility as requested by the state. This was during a time when concerns from the surrounding community had begun to rise over use of a cancer-causing chemical, ethylene oxide, for sterilization of medical equipment and instruments.

The county imposed in later months a stay on any reopenings. The facility remains closed pending county-initiated third-party investigations into Cobb fire code and building safety concerns, according to Sterigenics officials.

McNabb said prior to the public outcry, the plant had been operating with the blessing of environmental experts and Cobb County officials for more than four decades.

He also said his company's agreement with the Georgia Environmental Protection Division for installation of \$4 million in emissions-reducing enhancements has led to even lower levels of ethylene oxide that would come from the facility, which he said already emitted safe levels of the gas.

McNabb said the facility should be cleared to continue its operations immediately so the company, whose multiple facilities across the globe sterilize approximately a quarter of the world's personal protective equipment, can contribute to the fight against coronavirus.

"We've got what represents probably the most efficient facility, possibly in the world, around the capture and control of ethylene oxide that is right now not operating in time, probably where there's more focus on the need for medical devices than before," he said, "And the reason it's not operating is because of — I'll call it bureaucracy — around re-looking at through a third party what the county has validated for over 40 years: that the facility has the appropriate certificates of occupancy, it's a safe facility, and we're looking for a third party to validate that. That process has been going on for five months."

Sterigenics officials say the investigation process should have lasted only 30 days.

A fact sheet provided by the company shows that more than 1 million "critical protective gowns" previously sterilized at the Sterigenics facility in Cobb are awaiting sterilization before they can be used.

"Sterigenics is standing by to meet those needs," the fact sheet states.

McNabb said in addition to protective gear, the company's facilities sterilize millions of other critical products per day that support COVID-19 treatment, including respirator breathing tubes, IV tubing sets, saline, sterile water, drapes, syringes and other items.

The fact sheet also shows the company has the ability to address the sterilization backlog for items needed to combat the outbreak, as well as the ability to replicate locally a safe and rapid mask sterilization process that has been used in China.

County spokesman Ross Cavitt issued this email statement to the MDJ: "We have had ongoing discussions in the past few days with Sterigenics representatives about the situation as we are both trying hard to address concerns about the spread of the COVID-19 virus."

He said the county has not yet received a report from the independent third-party experts.

Cobb County Commissioner Lisa Cupid said she supports awaiting the outcome of those reports. Cupid said she does not support putting one public health concern on the back burner in the interest of another. She said she would need to hear experts say that all public health concerns surrounding ethylene oxide have been eliminated before she could support the facility reopening.

Commissioner Bob Ott didn't respond to the MDJ's request for comment by press time.

State Rep. Erick Allen, D-Smyrna, said while he would be supportive of reopening the Cobb Sterigenics facility if need be and only during the coronavirus state of emergency, the call to reopen the facility near Smyrna should come from the manufacturers of the medical products in short supply.

Allen said Sterigenics is not a manufacturer of anything, and, as far as he's been told, the need for protective equipment like gloves, masks and gowns is because of a lack of manufacturing capabilities, not sterilizing capabilities.

However, Sterigenics representatives say there is a shortage of sterilization capability along with the equipment shortage in Georgia that could be addressed by the Cobb facility's reopening.

Allen said if he were to support the Cobb plant's reopening during the coronavirus pandemic, it would have to be on advice from medical equipment manufacturers who say specifically that there is no other choice than to open the Sterigenics facility near Smyrna.

Allen concluded by echoing Commissioner Cupid: "You have to be cautious not to trade one public health risk for another."

Follow Thomas Hartwell on i	Twitter at twitter.com/MDJThomas.	

Exhibit 57



Support Local Journalism. Subscribe today for 99¢.



POLITICS | March 26, 2020

By Dan Klepal, The Atlanta Journal-Constitution

Hours after Cobb County officials announced that they would allow Sterigenics to reopen, the controversial medical device sterilizer issued a statement saying the county's action falls "woefully short of the measures needed to protect public health" as the novel coronavirus continues to spread across Georgia and beyond.

©2020 The Atlanta Journal-Constitution. All Rights Reserved. By using this website, you accept the terms of our Visitor Agreement and Privacy Policy, and understand your options regarding Ad Choices. Learn about careers at Cox Enterprises.

Need Help?

company was roiled by public controversy over the facility's use of a carcinogenic gas, ethylene oxide, in its sterilization process.

Cobb Commission Chairman Mike Boyce signed an emergency order Wednesday, after lobbying by federal health officials and Gov. Brian Kemp. The order allows Sterigenics to resume operations at its facility near Smyrna on a limited basis, and restricts the amount of ethylene oxide permitted on site.

It expires at the end of the county's Declaration of Emergency related to the coronavirus pandemic.

Sterigenics lengthy statement says it will "take immediate steps" to resume sterilization of personal protective medical equipment, but the county's order "excludes sterilization of vital medical products and devices, including ventilator tubing, IV sets, catheters and many other medical products that are essential to patient care."

There has been a nationwide shortage of protective equipment for medical professionals on the front line of the fight against the virus.

Credible reporting in incredible times. Support local journalism.

SUBSCRIBE NOW

Boyce said Thursday that the county's order allowing Sterigenics to reopen "reflects our understanding of the narrow scope of what the FDA is requesting — that we allow Sterigenics to reopen with the context of responding to this national emergency."

©2020 The Atlanta Journal-Constitution. All Rights Reserved. By using this website, you accept the terms of our Visitor Agreement and Privacy Policy, and understand your options regarding Ad Choices. Learn about careers at Cox Enterprises.

Need Help?

Sterigenics has come under scrutiny for its permitted use of ethylene oxide, which has been used as a sterilizer for decades. But in 2016, the federal government reclassified the chemical as a definite carcinogen and determined that it is toxic at much lower levels than previously thorught.

A revised risk assessment published last summer concluded areas surrounding facilities that use ethylene oxide may have increased risk of cancer, if exposure occurs over a lifetime.

Georgia Rep. Teri Anulewicz (D-Smyrna) said she was disappointed in what she called the "abrupt" reopening: "One question I have for Chairman Boyce is whether he consulted with any of the other jurisdictions that are impacted by his decision."

Vinings resident Chad Harlan wrote a letter to county and state leaders opposing the plant's reopening, and saying he has lived in the area for years and lost family members to cancer. Harlan said he and many of his neighbors would be challenging their property tax bills if the plant reopens.

"The re-opening of this plant immediately reduces the value of my home," Harlan said. "We are already in a declining home market due to the virus; this will make matters worse in our community. Imagine the impact to tax revenues in an already very tough year for county and state revenue.

"This is an important safety, health, and financial decision the county and state are making."

©2020 The Atlanta Journal-Constitution. All Rights Reserved. By using this website, you accept the terms of our Visitor Agreement and Privacy Policy, and understand your options regarding Ad Choices. Learn about careers at Cox Enterprises.

Need Help?

of the county's permit requirements.

"Sterigenics has invested significant resources to install voluntary upgrades to our emission control systems," the statement says. "We have fully complied with the fire and safety review required by Cobb County, which is now in the County's hands. That review required by the County further demonstrates that our facility is in compliance and safe.

"The only thing that remains is for the County to confirm that the facility may be reopened for full operation to meet the urgent needs facing health care workers and patients."

Boyce said it will take cooperation from all three parties for the plant to reopen permanently.

"The only way we will issue the permit is when we believe they will meet the state standards" for ethylene oxide emissions, Boyce said.

Support real journalism. Support local journalism. Subscribe to The Atlanta Journal-Constitution today. See offers.

Atlanta INews | 4 days ago

'Lucky to be alive': Driver taken to hospital after 'serious' car wreck in Smyrna

AJU

Irish breakfast: A familiar format enhanced with

Exhibit 58

https://www.mdjonline.com/news/million-per-month-closure-of-sterigenics-cobb-plant-costscompany/article_2455cab6-fcb8-11e9-95d9-e73daad6a40f.html

CENTERPIECE

\$3 million per month: Closure of Sterigenics' Cobb plant costs company

By Rosie Manins rmanins@mdjonline.com Nov 1, 2019



The Sterigenics plant in Cobb County. Rosie Manins

The closure of Sterigenics' Cobb County medical sterilization plant has cost one of its customer companies about \$9 million in revenue loss in the last three months of this year alone, financial reports show.

Teleflex is a global medical product supplier with annual revenue of around \$2.4 billion, operating in dozens of countries with corporate headquarters in Pennsylvania, its website states.

Its president and chief executive officer, Liam Kelly, released the company's third quarter 2019 financial report Thursday, with comment about how the Sterigenics' Cobb plant closure, since the end of August, is negatively impacting Teleflex.



"Based on currently available information, we believe that the suspension of operations at Sterigenics' Smyrna facility will adversely affect our revenues by approximately \$9 million during the fourth quarter of 2019," Kelly states in his Oct. 31 report, co-signed by Teleflex Executive Vice President and Chief Financial Officer Thomas Powell. "In addition, while we are working to identify alternate sterilization facilities for the affected product, if operations at the Smyrna facility remain suspended and we are unable to find adequate sterilization capacity at an alternate facility or facilities, we expect the suspension of operations at the Smyrna facility will continue to adversely affect our revenues in 2020."

The Teleflex report is here:





TELEFLEX INC

FORM 10-Q (Quarterly Report)

Filed 10/31/19 for the Period Ending 09/29/19

Address 550 E SWEDESFORD RD

SUITE 400

WAYNE, PA, 19087

Telephone 610-225-6800

> CIK 0000096943

Symbol **TFX**

SIC Code 3841 - Surgical and Medical Instruments and Apparatus

Industry Medical Equipment, Supplies & Distribution

Sector Healthcare

Fiscal Year 12/31

http://pro.edgar-online.com

@ Copyright 2019, EDGAR Online, a division of Donnelley Financial Solutions. All Rights Reserved. Distribution and use of this document restricted under EDGAR Online, a division of Donnelley Financial Solutions, Terms of Use.

A spokesman for Sterigenics, Bryan Locke, told the MDJ the company cannot comment on "details related to customers."

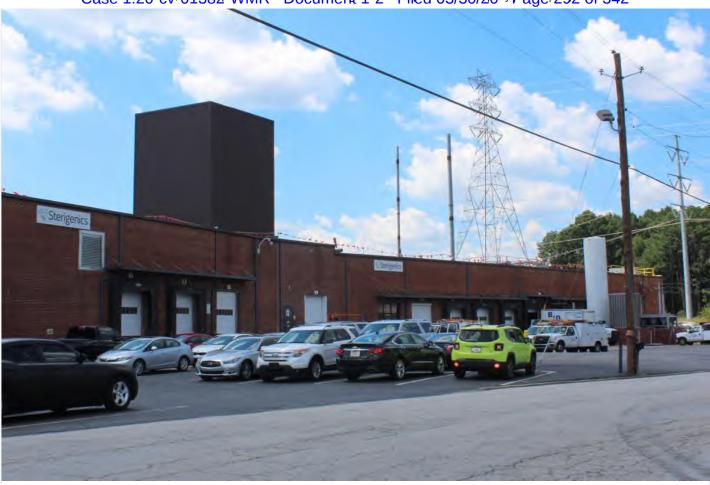
Sterigenics' plant at 2971 Olympic Industrial Drive in southeast Cobb is currently closed pending approval to reopen by Cobb County and the Georgia Environmental Protection Division.

It uses ethylene oxide, a carcinogen, to sterilize packaged medical equipment like catheters, feeding tubes, cardiac stents and surgical kits used in operations like emergency C-sections, heart surgery and hip or knee replacements, according to

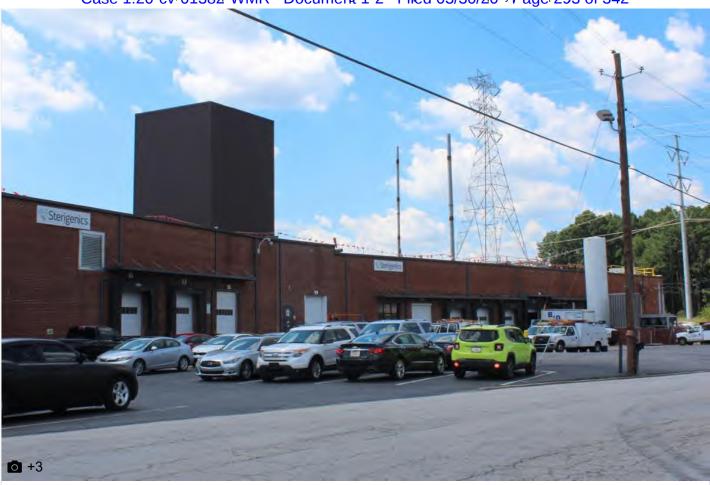
MORE INFORMATION



Cobb, Fulton legislators convene to discuss toxic chemical use



Sterigenics threatens legal action against Cobb County



Comply or stay closed: Cobb forces safety upgrades at Sterigenics plant



Laws to curb ethylene oxide emissions proposed by Cobb Democrat



Future remains uncertain for Cobb sterilization plant



Concern remains despite closure of Cobb sterilization plant



Testing at Sterigenics' Cobb plant called off



Cobb 'in discussions' with Sterigenics over chemical storage at local plant

Exhibit 59

Minutes of the meeting of the Cobb County Planning Commission Zoning Hearing held on **July 5, 1994** in the Second Floor Commissioners' Meeting Room, Cobb County Building, 100 Cherokee Street, Marietta, Georgia.

The Cobb County **Planning Commission Zoning Hearing** was called to order at 9:06 a.m. and the following items were considered by the Cobb County Planning Commission: consent agenda, regular agenda, and held cases.

Roll call was performed by Karen Hach, Deputy County Clerk. The following members of the Cobb County Planning Commission were present:

PLANNING COMMISSION

Henley Vansant, Chairman Dick Jones, Vice Chairman Jean Hallinan, Secretary Murray Homan, Member Jerry Dawson, Member

REGULAR AGENDA

Mobile Homes (Medical and Construction Hardships)

- MH-9 LOUISE RAMSEY (Ethel Womack, owner) for a Land Use Permit (renewal) for the purpose of Parking a Mobile Home (medical hardship) in Land Lot 10 of the 20th District. 1.066 acre. Located on the south side of Cherokee Road, 802 feet east of Maryland Drive, (3673 Cherokee Road). The Planning Commission, as part of the Consent Agenda, recommended approval of application for 12 months subject to inclusion of this petition on the Consent Agenda before the Board of Commissioners on July 19, 1994. Motion by Hallinan, second by Dawson, carried 5-0.
- MH-10 LENA GREER for a Land Use Permit for the purpose of Parking a Mobile Home (medical hardship) in Land Lots 629 and 630 of the 19th District. 1.6 acres. Located on the west side of Hicks Road, south of East Callaway Road, (2840 Hicks Road). The Planning Commission, as part of the Consent Agenda, recommended approval of application for 12 months subject to inclusion of this petition on the Consent Agenda before the Board of Commissioners on July 19, 1994. Motion by Hallinan, second by Dawson, carried 5-0.

Rezonings

Z-93

TEAGUE INVESTMENTS (Pope and Land Pool Six L.P., A Georgia Limited Partnership, owners) for Rezoning from GC, OS, LI and OI with stipulations to RM-16, GC, OS, LI and OI for the purpose of Multi-family, Offices and Warehouse in Land Lots 54, 55, 60 and 61 of the 20th District. 87.755 acres. Located on the west side of Shiloh Road south and north of Royal North Parkway. The Planning Commission recommended approval of application subject to: 1) letter of agreeable conditions submitted by John H. Moore, dated June 28, 1994; 2) property to be included in the 1994 Annual Comprehensive Plan Amendment Process; 3) State water exist on this site which require undisturbed buffers 25 feet from the top of each bank; 4) owner/developer to enter into a Development Agreement pursuant to O.C.G.A. 36-71-13 for dedication of system improvements to mitigate traffic concerns; 5) owner/developer required to meet all Cobb County Development Standards and Ordinances related to project improvements; 6) Weeks Drive to remain closed (no access from this development via Weeks Drive); 7) installation of a fence adjacent Mt. Zion Church (height and style not yet determined); 8) applicant's representative to attempt to resolve property boundary dispute prior to the July 19, 1994 Board of Commissioners' Zoning Motion by Dawson, second by Homan, carried 3-2, Jones and Hearing. Hallinan opposed.

Z-94

PUBLIX SUPER MARKETS, INC. for Rezoning from CRC with stipulations to CRC for the purpose of Removing Two Stipulations in Land Lots 815, 816, 840, and 841 of the 17th District. 22.834 acres. Located on the southeast side of I-285, south of Paces Ferry Road, west of Cumberland Parkway. During the public hearing for this petition it was determined that this application involved land acquisition matters; therefore, the Planning Commission at 10:20 a.m. entered into closed Executive Session to discuss this pending matter. Motion to go into Executive Session by Hallinan, second by Jones, carried 5-0. At 10:40 a.m. the Planning Commission Zoning Hearing was reconvened. Motion to reconvene by Hallinan, second by Dawson, carried 5-0. Immediately upon reconvening the applicant's representative, Mr. Jay McClure, was asked if he was aware of zoning stipulation requiring donation and dedication to Cobb County of right-of-way along the west side of Cumberland Parkway so as to provide a 55 foot (as measured from centerline) right-of-way from Paces Ferry Road to the south boundary of the subject property. Mr. McClure stated he was aware of and agreeable to this condition. Following these discussions the Planning Commission recommended approval of application subject to: 1) removal of stipulation #3 of 2-16-93 (reference application #Z-1 DFP #1, L.P. and PF Partners #3 L.P.): "setbacks adjacent to I-285 and Cumberland Parkway subject to site plan received by Staff on December 15, 1992"; 2) all other stipulations of Z-1 (DFP #1, L.P. and PF Partners #3, L.P.) to remain in effect (with the clarification that recommendation #2 of Exhibit "B" is not intended to inhibit the development of the subject property for the stated purpose of a Publix Super Market, but to notify owner/developer of potential future ROW requirements. Motion by Jones second by Hallinan, carried 5-0.

- **Z-95** STANLEY E. THOMAS for Rezoning from OMR to GC for the purpose of Retail in Land Lots 649 and 650 of the 16th District. 3.5 acres. Located on the west side of Cobb Place Boulevard, north of Ernest Barrett Parkway. At the call of this petition on the Consent Agenda, the applicant/representative was not Later in the public hearing, but prior to adjournment, the applicant/representative arrived and this petition was returned to the Consent Agenda. Motion to return to Consent Agenda by Homan, second by Jones, carried 5-0. Subsequently, the Planning Commission, as part of the Consent Agenda, recommended approval of application subject to: 1) applicant to verify comprehensive detention for shopping center and outparcels; 2) developer to relocate existing sewer outfall line out of existing Barrett Place master storm water detention basin; 3) applicant required to meet all Cobb County Development Standards and Ordinances related to project improvements; 4) inclusion of this petition on the Consent Agenda before the Board of Commissioners on July 19, 1994. Motion by Hallinan, second by Dawson, carried 5-0.
- GRADY EUGENE HOUSLEY for Rezoning from NS to CRC for the purpose of Auto Muffler Installation in Land Lots 493 and 444 of the 16th District. 1.331 acre. Located at the northeast intersection of Canton Highway and Brackett Road. The Planning Commission, as part of the Consent Agenda, recommended approval of application subject to: 1) owner/developer to enter into a Development Agreement pursuant to O.C.G.A. 36-71-13 for dedication of system improvements to mitigate traffic concerns; 2) owner/developer is required to meet all Cobb County Development Standards and Ordinances related to the project improvements; 3) project subject to the Cobb County Flood Damage Prevention Ordinance requirements; 4) inclusion of this petition on the Consent Agenda before the Board of Commissioners on July 19, 1994. Motion by Hallinan, second by Dawson, carried 5-0.
- **Z-97** GIGI GRAY for Rezoning from PSC to OI for the purpose of an Office in Land Lot 963 of the 16th District. 0.5 acre. Located on the east side of Taliwa Trail, south of Roswell Road. The Planning Commission, as part of the Consent Agenda, recommended deletion of application to the LRO zoning district further subject to: 1) any additions to the existing house to be submitted through the Plan Review process; 2) applicant required to meet all Cobb County Development Standards and Ordinances related to project improvements; 3) inclusion of this petition on the Consent Agenda before the Board of Commissioners on July 19, 1994. Motion by Hallinan, second by Dawson, carried 5-0.

- **Z-98** PROVIDENCE DEVELOPMENT, INC. (Jessie K. Dennis, owner) for Rezoning from R-30 to R-20 for the purpose of a Subdivision in Land Lot 161 of the 20th District. 5.66 acre (tract 2 and 3). Located on the south side of Jim Owens Road, east of Acworth-Due West Road. The Planning Commission, as part of the Consent Agenda, recommended approval of application subject to: 1) owner/developer to enter into a Development Agreement pursuant to O.C.G.A. 36-71-13 for dedication of system improvements to mitigate traffic concerns; 2) one (1) shared access for the three (3) lots on Jim Owens Road: 3) owner/developer to verify that minimum intersection sight distance is available, and if it is not implement remedial measures subject to the Department of Transportation's approval; 4) owner/developer required to meet all Cobb County Development Standards and Ordinances related to project improvements; 5) State waters exist on site which required undisturbed buffers 25 feet from the top of each bank; 6) minimum house size of 1,600 square feet; 7) inclusion of this petition on the Consent Agenda before the Board of Commissioners on July 19, 1994. Motion by Hallinan, second by Dawson, carried 5-0.
- **Z-99** SCC ATLANTA, INC. (June W. Murray, owner) for Rezoning from R-30 to R-20 for the purpose of a Subdivision in Land Lots 231, 232 and 263 of the 20th District. 28.88 acres. Located on the east side of Mars Hill Road, north of Ford Road. The Planning Commission held application until the August 2, 1994 Planning Commission Zoning Hearing. Motion by Vansant, second by Hallinan, carried 5-0.
- Z-100JIM ROBINSON (William A. Hunter, owner) for Rezoning from R-20 to R-15 for the purpose of a Subdivision in Land Lot 719 of the 19th District. 6.92 acres. Located on the south side of Macedonia Road, west of Noses Creek. At the call of this petition on the Consent Agenda, the applicant/representative was not present. Later in the public hearing, but prior to adjournment, the applicant/representative arrived and this petition was returned to the Consent Agenda. Motion to return to Consent Agenda by Homan, second by Jones, carried 5-0. Subsequently, the Planning Commission, as part of the Consent Agenda, recommended approval of application subject to: 1) 1,450 square foot minimum house size; 2) detention facilities not to encroach into building setbacks adjacent to developed land; 3) developed runoff not to exceed the of the existing storm drainage system downstream; owner/developer to enter into a Development Agreement pursuant to O.C.G.A. 36-71-13 for dedication of system improvements to mitigate traffic concerns; 5) applicant to verify that minimum intersection sight distance is available and if it is not, implement remedial measures, subject to the Cobb DOT approval, to achieve the minimum requirements of 350 feet; 6) owner/developer is required to meet all Cobb County Development Standards and Ordinances related to the project improvements; 7) inclusion of this petition on the Consent Agenda before the Board of Commissioners on July 19, 1994. Motion by Hallinan, second by Dawson, carried 5-0.

Z-101

CIRCLE W CONSTRUCTION (Harold Robinson, owner) for Rezoning from R-30 to R-20 for the purpose of a Subdivision in Land Lots 275 and 276 of the 19th District. 24.8 acres. Located at the south end of Commonwealth Avenue, south of Villa Rica Road. The Planning Commission, as part of the Consent Agenda, recommended approval of application subject to: 1) minimum house size of 1,700 square feet; 2) State waters exist on site which required undisturbed buffers 25 feet from the top of each bank; 3) project subject to the Cobb County Flood Damage Prevention Ordinance; 4) owner/developer is responsible for obtaining any required wetland permits from the U.S. Army Corps of Engineers; 5) inclusion of this petition on the Consent Agenda before the Board of Commissioners on July 19, 1994. Motion by Hallinan, second by Dawson, carried 5-0.

Z-102

DAVID PEARSON (Larry and Jane Carithers, owners) for Rezoning from R-20 to R-15 for the purpose of a Subdivision in Land Lots 212 and 225 of the 1st District. 10.0 acres. Located on the west side of Lower Roswell Road, north of Forest Brook Parkway. The Planning Commission recommended approval of application subject to: 1) minimum house size of 2,000 square feet; 2) project subject to the Cobb County Flood Prevention Ordinance; 3) owner/developer to enter into a Development Agreement pursuant to O.C.G.A. 36-71-13 for dedication of system improvements to mitigate traffic concerns; 4) owner/developer required to meet all Cobb County Development Standards and Ordinances related to project improvements; 5) minimum lot widths of 110 feet; 6) allowance of rear yard setback of 35 feet in lieu of required 40 feet on lot #2 and allowance of major side yard setback of 20 feet in lieu of required 25 feet on lots #1 and #20; 7) detention pond(s) to be landscaped around entire perimeters of the detention ponds so as to visually screen detention systems from adjoining property owners (landscaping plans to be approved by Staff); 8) installation of a six (6) foot brick fence along Lower Roswell Road frontage. Motion by Dawson, second by Homan, carried 5-0. Later in the public hearing, but prior to adjournment, the Planning Commission reconsidered this application. Motion to reconsider by Dawson, second by Homan, carried 5-0. Upon reconsideration, the Planning Commission deleted stipulation requiring minimum lot width of 110 feet and replaced with stipulation of maximum of 20 lots for this development. Motion by Dawson, second by Homan, carried 5-0.

Z-103

THOMAS AND DONNA STEWART for Rezoning from R-80 to R-30 for the purpose of a Three Single Family Homes in Land Lot 278 of the 20th District. 3.86 acres. Located on the east side of Frank Kirk Road, north of Stoney Acres Drive. The Planning Commission, as part of the Consent Agenda, recommended approval of application subject to: 1) 2,000 square foot minimum house size; 2) one (1) shared access from Frank Kirk Road; 3) one lot, plus applicant's lot, which applicant is currently building on, is to be platted and recorded through the Development Control Department; 4) inclusion of this petition on the Consent Agenda before the Board of Commissioners on July 19, 1994. Motion by Hallinan, second by Dawson, carried 5-0.

- **Z-104** ELLIS BROTHERS DEVELOPMENT, INC. (G. E. Rhodes, Jr., owner) for Rezoning from R-20 to R-12 for the purpose of a Subdivision in Land Lot 33 of the 17th District. 14.97 acres. Located at the north end of Silhouetta Drive, north of Clay Drive. The Planning Commission recommended deletion of application to a "straight" R-15 zoning district with the statement included in the record that the Planning Commission does not make a finding or recommendation as to legal matters regarding ownership of property. Motion by Homan, second by Jones, carried 5-0.
- RAYMOND MOSS (Talley E. Fountain, owner) for Rezoning from R-20 to R-12 for the purpose of a Subdivision in Land Lot 771 of the 16th District. 3.8 acres. Located on the east side of Piedmont Road, east of Glenridge Road. The Planning Commission recommended deletion of application to a "straight" R-15 zoning district subject to: 1) owner/developer to enter into a Development Agreement pursuant to O.C.G.A. 36-71-13 for dedication of system improvements to mitigate traffic concerns; 2) owner/developer required to meet all Cobb County Development Standards and Ordinances related to project improvements; 3) owner/developer to coordinate with the Cobb DOT Engineering Division prior to development plan approval in order to ensure compatibility with the roadway project to minimize impacts. Motion by Jones, second by Dawson, carried 4-1, Homan opposed.
- **Z-106** CHARLES J. JONES, INC. (South Cobb L.P., owner) for Rezoning from R-20 to PRD for the purpose of a Subdivision in Land Lots 924 and 925 of the 19th District. 10.107 acres. Located on the north side of the East-West Connector, west of Hicks Road. The Planning Commission, as part of the Consent Agenda, recommended approval of application subject to: 1) modification to the recreation area on the adjoining tract (petition #Z-13 of 2-15-94) as shown on revised site plan for this petition; 2) minimum house size of 1,600 square feet; 3) project subject to the Cobb County Flood Damage Prevention Ordinance: 4) State waters may exist on site which would required undisturbed buffers 25 feet from the top of each bank; 5) entrance to be constructed at existing median break location which shall include deceleration and acceleration lanes with tapers per DOT policy; 6) owner/developer is required to meet all Cobb County Development Standards and Ordinances related to project improvements; 7) inclusion of this petition on the Consent Agenda before the Board of Commissioners on July 19, 1994. Motion by Hallinan, second by Dawson, carried 5-0.

Z-107

B. WILMONT WILLIAMS (Gordon R. Backus and George B. Backus, Sr., owners) for Rezoning from R-20 to RA-4 for the purpose of a Subdivision in Land Lots 8 and 71 of the 1st District. 14.429 acres (revised). Located on the southeast side of Woodlawn Drive, north of Powers Road. The original Planning Commission motion to hold application was withdrawn. On separate motion the Planning Commission recommended approval of application subject to: 1) minimum house size of 2,800 square feet, with the exception of five lots that may have a minimum house size of 1,800 square feet. These five lots are to be located to the interior of the development; 2) site plan submitted dated 6-20-94 (subject to the inclusion of a wall/fence to be installed adjacent to the Boomershine property; Clerk's Note: The Planning Commission indicated their concern with the issue of placement of a wall/fence to buffer the Boomershine property, but at the time of the public meeting no determination was made as to style, construction materials, height, etc. of wall/fence. The Planning Commissioners were assured by the applicant and opposition that resolution to these issues would be presented in the form of an agreeable condition prior to the July 19, 1994 Zoning Hearing; owner/developer is responsible for obtaining any required wetland permits from the U.S. Army Corps of Engineers; 4) State waters may exist on site which may require undisturbed buffers 25 feet from the top of the bank: 5) owner/developer to enter into a Development Agreement pursuant to O.C.G.A. 36-71-13 for dedication of system improvements to mitigate traffic concerns. Motion by Dawson, second by Hallinan, carried 5-0.

Z-108

CORNERSTONE INVESTMENTS (Pope and Land Pool Six, L.P., owner) for **Rezoning** from **OS** to **PRD** for the purpose of a Subdivision in Land Lots 62 and 63 of the 20th District. 33 acres. Located on the northeast side of Baker Road, east of Moon Station Road. The Planning Commission recommended **rejection** of application. Motion by Hallinan, second by Jones, carried 5-0.

Z-109

DAVID PEARSON (Alice Bostic, owner) for Rezoning from R-20 to RA-4 for the purpose of a Subdivision in Land Lots 267 and 268 of the 16th District. 4.725 acres. Located on the southwest side of Trickum Road, north of Easy Circle. The Planning Commission recommended rejection of application. Motion by Homan, second by Hallinan, carried 5-0. Later in the public hearing, but prior to adjournment, the Planning Commission reconsidered application. Motion to reconsider by Homan, second by Hallinan, carried 5-0. There followed discussion of applicant's proposal to amend applications Z-109 and Z-78 so as to develop a PRD development. At that time Legal Counsel informed the Planning Commission that a rejection vote would prejudice the property thereby preventing the Board of Commissioners from considering the applicant's request. The Planning Commissioners, unaware of the Board of Commissioners' opinions regarding applicant's proposal, chose to refer this application to the Board of Commissioners without a recommendation. Motion to refer to the Board of Commissioners without recommendation by Dawson, second by Hallinan, carried 5-0. CLERK'S NOTE: The Planning Commissioners requested review of applications Z-109 and Z-78 if they should be submitted as a PRD request.

Land Use Permits

- LUP-39 SANDY AND RICK CLOUGH for a Land Use Permit for the purpose of an Artist's Studio (storing art prints) in Land Lot 336 of the 20th District. 6.344 acres. Located on the west side of Trail Road, west of Midway Road, (25 Trail Road). The Planning Commission, as part of the Consent Agenda, recommended approval of application for 12 months subject to: 1) no signs; 2) no employees or customers at site; 3) no on-street parking; 4) inclusion of this petition on the Consent Agenda before the Board of Commissioners on July 19, 1994. Motion by Hallinan, second by Dawson, carried 5-0.
- LUP-40 LEE DUNN (Robert W. and Jimmie W. Pruitt, owners) for a Land Use Permit for the purpose of a Greenhouse Nursery in Land Lots 1123 and 1182 of the 16th District. 0.5 acre. Located on the east side of Cross Gate Drive, 484 feet north of Greenwood Way, (260 Cross Gate Drive). The Planning Commission recommended rejection of application with 45 days from the date of the final decision by the Board of Commissioners for the structure (greenhouse) and business to be removed from site (greenhouse may remain on site if noncommercial in use and is relocated to appropriate location on property). Motion by Dawson, second by Jones, carried 5-0.
- LUP-41 ERIN DRISCOLL for a Land Use Permit (renewal) for the purpose of Child Care in Land Lot 258 of the 20th District. 0.5 acre. Located on the east side of Wyntuck Circle, 1036 feet north of Wyntuck Drive, (3753 Wyntuck Circle). The Planning Commission, as part of the Consent Agenda, recommended approval of application for 24 months subject to: 1) maximum of 10 children; 2) no employees; 3) no signs; 4) no on-street parking; 5) inclusion of this petition on the Consent Agenda before the Board of Commissioners on July 19, 1994. Motion by Hallinan, second by Dawson, carried 5-0.
- CHERYLE WEIDMAN (David and Cheryle Weidman, owners) for a Land Use Permit (renewal) for the purpose of Hair Salon in Land Lot 169 of the 16th District. 0.35 acre. Located on the south side of Windsor Oaks Court, west of Windsor Oaks Drive, (4543 Windsor Oaks Court). The Planning Commission, as part of the Consent Agenda, recommended approval of application for 24 months subject to: 1) clients by appointment only; 2) no on-street parking; 3) one station, one operator only; 4) inclusion of this petition on the Consent Agenda before the Board of Commissioners on July 19, 1994. Motion by Hallinan, second by Dawson, carried 5-0.

- LUP-43 STEVEN K. CRONIC (Charles Entsminger, owner) for a Land Use Permit for the purpose of a Taxidermy Shop in Land Lot 351 of the 16th District. 3.6 acres. Located on the west end of Coventry Drive, 200 feet west of Westminister Way, (Home address: 3702 Keningston Drive). The Planning Commission recommended approval of application for 24 months subject to: 1) letter of agreeable conditions submitted by applicant's representative, dated June 16, 1994; 2) any site improvements to be submitted through the Plan Review process; 3) inclusion of this petition on the Consent Agenda before the Board of Commissioners on July 19, 1994. Motion by Vansant, second by Homan, carried 5-0.
- LUP-44 TIM KEPLER (Ava Kepler, owner) for a Land Use Permit for the purpose of a Home Office in Land Lot 180 of the 16th District. 0.34 acre. Located on the east end of Woodford Pass, 724.89 feet north of Mabry Road, (4486 Woodford Pass). The Planning Commission recommended approval of application for 12 months subject to: 1) maximum of one (1) employee; 2) no on-street parking; 3) no signs; 4) no commercial deliveries; 5) no clients at site; 6) inclusion of this petition on the Consent Agenda before the Board of Commissioners on July 19, 1994. Motion by Homan, second by Dawson, carried 5-0.

Special Land Use Permits

- GRIFFITH MICRO SCIENCE (Indcon, L.P., owner) for a Special Land Use Permit for the purpose of a Sterilization Facility in Land Lots 899 and 962 of the 17th District. 5.70 acres. Located on the south side of Olympic Industrial Drive, north of Seaboard Airline Railroad. The Planning Commission, as part of the Consent Agenda, recommended approval of application subject to: 1) the Air Quality Permit issued by the State of Georgia, Department of Natural Resources, Environmental Protection Division; 2) inclusion of this petition on the Consent Agenda before the Board of Commissioners on July 19, 1994. Motion by Hallinan, second by Dawson, carried 5-0.
- SLUP-6 BEDMINSTER BIOCONVERSION CORP. (Cobb County, Georgia, owner) for a Special Land Use Permit for the purpose of a Building and Operating a Municipal Solid Waste Composting Facility in Land Lots 406, 407, 409 and 490 of the 19th District. 19.0 acres. Located on the west side of North County Farm Road, north of County Farm Drive. WITHDRAWN
- SLUP-7

 BELLSOUTH MOBILITY, INC. (United States Postal Service, owner) for a Special Land Use Permit for the purpose of a Cellular Transmission Tower and Switchgear Building in Land Lots 525 and 556 of the 16th District. 3.934 acres. Located on the southeast side of Sandy Plains Road, north of Post Oak Tritt Road. The Planning Commission, as part of the Consent Agenda, recommended approval of application subject to: 1) maximum height of 153 feet; 2) structure to be self-supported monopole; 3) inclusion of this petition on the Consent Agenda before the Board of Commissioners on July 19, 1994. Motion by Hallinan, second by Dawson, captied 5-0.

HELD CASES

- LARRY B. THOMPSON (Doyle E. Covington, owner -- other owners listed in file located at the Planning and Zoning offices) for Rezoning from R-20 and R-30 to PRD for the purpose of a Subdivision in Land Lots 536 and 545 of the 16th District. 40.9 acres (revised). Located at the end of Covington Road, west of Lassiter Road. The Planning Commission recommended approval of application subject to: 1) revised site plan dated 6-7-94; 2) 2,000 square foot minimum house size; 3) owner/developer responsible for obtaining any required wetland permits from the U.S. Army Corps of Engineers; 4) no homes to be built within the damn breach area; 5) State waters may exist on this site which may require undisturbed buffers 25 feet from the top of each bank; 7) owner/developer required to meet all Cobb County Development Standards and Ordinances related to project improvements. Motion by Dawson, second by Hallinan, carried 5-0.
- **Z-78**DAVID PEARSON (J. W. Holland, owner) for Rezoning from R-20 to RA-4 for the purpose of a Subdivision in Land Lot 268 of the 16th District. 18.37 acres. Located on the south side of Eula Road, west of Trickum Road. Following a brief presentation by Legal Counsel and Mr. Danneman regarding applicant's proposal to amend applications Z-109 and Z-78 so as to develop a PRD development the Planning Commission elected to refer this application to the Board of Commissioners without a recommendation. Motion to refer to the Board of Commissioners without recommendation by Homan, second by Dawson, carried 5-0. CLERK'S NOTE: The Planning Commission requested review any PRD rezoning that should be submitted as a result of combining Z-109 and Z-78.
- Z-82 JPI DEVELOPMENT PARTNERS, INC. (Martha Wood Arant and William J. Arant, owners) for Rezoning from R-20 and R-80 to RM-12 (revised) for the purpose of Apartments in Land Lots 795 and 796 of the 17th District. 20.5 acres. Located on the east side of Little Road, north of Powers Ferry Road. The Planning Commission recommended deletion of application to the RA-6 zoning district subject to: 1) 10 foot landscaped buffer around perimeter of property; 2) 1,200 square foot minimum house size; 3) applicant/owner to work with County Arborist to save specimen trees located on site; 4) owner/developer is responsible for obtaining any required wetland permits from the U.S. Army Corps of Engineers. Motion by Dawson, second by Jones, carried 5-0.

Z-90

SUNRISE PROPERTIES (Carole K. Moss, owner) for Rezoning from OI and R-20 to NRC for the purpose of a Fast Food Restaurant and Retail Shops in Land Lot 470 of the 16th District. 1 acre. Located at the southwest intersection of Johnson Ferry Road and Waterfront Drive. The Planning Commission recommended approval of application subject to: 1) a committee is to be formed for the purpose of reviewing landscaping, architectural design and any other "as-needed" development issues, this committee is to include at least one County Staff person; 2) owner/developer to provide a 10 foot landscaped buffer with 6 foot high wall adjacent to the residence to the west; 3) owner/developer to enter into a Development Agreement pursuant to O.C.G.A. 36-71-13 for dedication of system improvements to mitigate traffic concerns; 4) driveway on Johnson Ferry Road to be designed as rightin/right-out only; 5) owner/developer is required to meet all Development Standards and Ordinances related to project improvements. Motion by Dawson, second by Jones, carried 5-0.

MINUTE APPROVAL

The Deputy County Clerk offered the following minutes for adoption/approval:

Minutes of Special Called Joint Meeting/Work Session of the Cobb County Planning Commission and the Cobb County Board of Commissioners held on June 30, 1994; Minutes of the Special Called Cobb County Planning Commission Meeting/Work Session held on June 8, 1994; and Minutes of the Cobb County Planning Commission Work Session held on June 28, 1994.

All minutes were adopted/approved as presented. VOTE: 5-0.

There being no further business the meeting was adjourned at 4:18 p.m. Motion to adjourn by Jones, second by Dawson, carried 5-0.

Adopted minutes of the July 5, 1994 Planning Commission Zoning Hearing.

Karen L. Hach, Deputy County Clerk Cobb County Board of Commissioners

Exhibit 60

Minutes of the meeting of the Cobb County Board of Commissioners Zoning Hearing held on **July 19, 1994** in the Second Floor Commissioners' Meeting Room, Cobb County Building, 100 Cherokee Street, Marietta, Georgia.

The Cobb County Board of Commissioners Zoning Hearing was called to order at 9:05 a.m., and the following items were considered by the Cobb County Board of Commissioners: consent agenda, regular agenda, held cases and other business.

Roll call was performed by Karen Hach, Deputy County Clerk. The following members of the Cobb County Board of Commissioners were present:

Bill Byrne, Chairman Joe L. Thompson William A. Cooper C. Freeman Poole Gordon J. Wysong

REGULAR AGENDA

Mobile Homes (Medical and Construction Hardships)

- MH-9 LOUISE RAMSEY (Ethel Womack, owner) for a Land Use Permit (renewal) for the purpose of Parking a Mobile Home (medical hardship) in Land Lot 10 of the 20th District. 1.066 acre. Located on the south side of Cherokee Road, 802 feet east of Maryland Drive, (3673 Cherokee Road). The Board of Commissioners, as part of the Consent Agenda, approved application for 12 months. Motion by Wysong, second by Byrne, carried 5-0.
- MH-10 LENA GREER for a Land Use Permit for the purpose of Parking a Mobile Home (medical hardship) in Land Lots 629 and 630 of the 19th District. 1.6 acres. Located on the west side of Hicks Road, south of East Callaway Road, (2840 Hicks Road). The Board of Commissioners approved application for 12 months. Motion by Thompson, second by Wysong, carried 5-0.

Rezonings

- Z 74LARRY B. THOMPSON (Doyle E. Covington, owner -- other owners listed in file located at the Planning and Zoning offices) for Rezoning from R-20 and R-30 to PRD for the purpose of a Subdivision in Land Lots 536 and 545 of the 16th District. 40.9 acres (revised). Located at the end of Covington Road, west of Lassiter Road. The Board of Commissioners approved application subject to: 1) revised site plan dated 6-7-94, marked as Exhibit "A"; 2) 2,000 square foot minimum house size; 3) owner/developer responsible for obtaining any required wetland permits from the U.S. Army Corps of Engineers; 4) no homes to be built within the damn breach area; 5) State waters may exist on this site which may require undisturbed buffers 25 feet from the top of each bank; 6) owner/developer required to meet all Cobb County Development Standards and Ordinances related to project improvements. Motion by Wysong, second by Poole, carried 5-0.
- Z-78 DAVID PEARSON (J. W. Holland, owner) for Rezoning from R-20 to RA-4 for the purpose of a Subdivision in Land Lot 268 of the 16th District. 18.37 acres. Located on the south side of Eula Road, west of Trickum Road. Following a presentation by applicant of proposal to combine applications Z-78 and Z-109 to form a PRD request, the Board of Commissioners held applications Z-78 and Z-109 with direction that applicant/representative submit a new combined application for PRD, and further directed Staff to insure proper posting and advertisement with no fee to be levied for the new application. Motion by Wysong, by Cooper, carried 5-0. CLERK'S Applications, Z-78 and Z-109, are being held until action on the new application due to fact that rejection, dismissal, etc. would prejudice the property.
- **Z-82** JPI DEVELOPMENT PARTNERS, INC. (Martha Wood Arant and William J. Arant, owners) for Rezoning from R-20 and R-80 to RM-12 (revised) for the purpose of Apartments in Land Lots 795 and 796 of the 17th District. 20.5 acres. Located on the east side of Little Road, north of Powers Ferry Road. The Board of Commissioners application to the RA-6 zoning district subject to: 1) 10 foot landscaped buffer around perimeter of property; 1,200 square foot minimum house size; 3) applicant/owner to work with County Arborist to save specimen trees located on site; 4) owner/developer is responsible for obtaining any required wetland permits from the U.S. Army Corps of Engineers. Motion by Byrne, second by Thompson, carried 5-0.

Z-90

SUNRISE PROPERTIES (Carole K. Moss, owner) for Rezoning from OI and R-20 to NRC for the purpose of a Fast Food Restaurant and Retail Shops in Land Lot 470 of the 16th District. 1 acre. Located at the southwest intersection of Johnson Ferry Road and Waterfront Drive. The Board of Commissioners approved application subject to: 1) not making a finding as to ownership of the strip of property lying between the Wilkins property and subject property, the Board stipulated that a berm and landscaping (per design to comply with profile submitted) is to be installed (with no portion of berm to be located on the Wilkins property). Said berm is to run the entire length of the western property line; 2) a committee is to be formed for the purpose of reviewing landscaping, architectural design and any other "as-needed" development issues, this committee is to include at least one County Staff person (with Cobb County reserving the right to replace this person as needed); 3) site plan for proposed retail portion of development to be submitted to and approved by the Board of Commissioners; owner/developer to enter into a Development Agreement pursuant to O.C.G.A. 36-71-13 for dedication of system improvements to mitigate traffic concerns; 5) driveway on Johnson Ferry Road to be designed as right-in/right-out 6) owner/developer is required to meet all Development Standards and Ordinances related to project improvements. Motion by Wysong, second by Cooper, carried 5-0.

CLERK'S NOTE:

The Board, by general consensus, asked that DOT personnel submit a Work Session Agenda Item for July 26, 1994 meeting, which would provide a cost estimate for improvements to the north side of Waterfront Drive (from Johnson Ferry Road to approximate distance corresponding with the Carole K. Moss property, application Z-90 -- Sunrise Properties). This cost estimate should include projection for installation of curb, gutter and sidewalk.

Z-93

TEAGUE INVESTMENTS (Pope and Land Pool Six L.P., A Georgia Limited Partnership, owners) for Rezoning from GC, OS, LI and OI with stipulations to RM-16, GC, OS, LI and OI for the purpose of Multi-family, Offices and Warehouse in Land Lots 54, 55, 60 and 61 of the 20th 87.755 acres. Located on the west side of District. Shiloh Road south and north of Royal North Parkway. The Board of Commissioners approved application subject to: 1) per applicant's agreeable condition stated at public hearing, there is to be no annexation of this property (entire 87.755 acres) for at least fifteen (15) years, this agreement/stipulation is to be included in any contract for sale of real property (should the property or any portion be sold by current owner); 2) letter of agreeable conditions submitted by John H. Moore, dated July 12, 1994, marked as Exhibit "A"; 3) property to be included in the 1994 Annual Comprehensive Plan Amendment Process: 4) State waters exist on this site which require undisturbed buffers 25 feet from the top of each 5) owner/developer to enter into a Development Agreement pursuant to O.C.G.A. 36-71-13 for dedication of system improvements to mitigate traffic concerns; 6) owner/developer required to meet all Cobb County Development Standards and Ordinances related to project improvements. Motion by Wysong, second by Poole, carried 5-0.

Z-94

PUBLIX SUPER MARKETS, INC. for Rezoning from CRC with stipulations to CRC for the purpose of Removing Two Stipulations in Land Lots 815, 816, 840, and 841 of the 17th District. 22.834 acres. Located on the southeast side of I-285, south of Paces Ferry Road, west of Cumberland Parkway. During the reading of the Consent Agenda, noting no opposition, Commissioner Thompson introduced discussion of adding application Z-94 to the Consent Agenda. Following discussions the Board of Commissioners added application to the Consent Agenda. Motion by Thompson, second by Wysong, carried 5-0. Consequently, the Board of Commissioners, as part of the Consent Agenda, approved application subject to: removal of stipulation #3 of 2-16-93 (reference application #Z-1 DFP #1, L.P. and PF Partners #3 L.P.) which states: "setbacks adjacent to I-285 and Cumberland Parkway subject to site plan received by Staff on December 15, 1992"; 2) all other stipulations of Z-1 to in effect (with the clarification recommendation #2 of Exhibit "B" is not intended to inhibit the development of the subject property for the stated purpose of a Publix Super Market, but to notify owner/developer of potential future ROW requirements; 3) letters submitted by of agreement applicant's representative and Kenneth P. Lynch, Jr., President of Vinings Homeowners Association, marked as Exhibit "A". Motion by Wysong, second by Byrne, carried 5-0.

- Z-95 STANLEY E. THOMAS for Rezoning from OMR to GC for the purpose of Retail in Land Lots 649 and 650 of the 16th District. 3.5 acres. Located on the west side of Cobb Place Boulevard, north of Ernest Barrett Parkway. Board of Commissioners, as part of the Consent Agenda, approved application subject to: 1) applicant to verify comprehensive detention for shopping center outparcels; 2) developer to relocate existing sewer outfall line out of existing Barrett Place master storm water detention basin; 3) owner/developer required to meet all Cobb County Development Standards and Ordinances related to project improvements. Motion by Wysong, second by Byrne, carried 5-0.
- Z-96 GRADY EUGENE HOUSLEY for Rezoning from NS to CRC for the purpose of Auto Muffler Installation in Land Lots 493 and 444 of the 16th District. 1.331 acre. Located at the northeast intersection of Canton Highway and Brackett Road. The Board of Commissioners, as part of the Consent approved application subject owner/developer to enter into a Development Agreement pursuant to O.C.G.A. 36-71-13 for dedication of system improvements to mitigate traffic concerns; owner/developer is required to meet all Cobb County Development Standards and Ordinances related to the project improvements; 3) project subject to the Cobb County Flood Damage Prevention Ordinance requirements. Motion by Wysong, second by Byrne, carried 5-0.
- GIGI GRAY for Rezoning from PSC to OI for the purpose of Z-97 an Office in Land Lot 963 of the 16th District. acre. Located on the east side of Taliwa Trail, south of Roswell Road. At the call of this petition on the Consent Agenda the applicant/representative was not Later in the public hearing, but prior to present. adjournment, the applicant/representative arrived and the Board of Commissioners returned application to the Consent Agenda. Motion to return to Consent Agenda by Wysong, second by Thompson, carried 5-0. Consequently, the Board of Commissioners, as part of the Consent Agenda, deleted application to the LRO zoning district further subject to: 1) any additions to the existing house to be submitted through the Plan Review process; 2) owner/developer required to meet all Cobb County Development Standards and Ordinances related to project improvements. Motion by Wysong, second by Byrne, carried 5-0.

- PROVIDENCE DEVELOPMENT, INC. (Jessie K. Dennis, owner) Z-98 for Rezoning from R-30 to R-20 for the purpose of a Subdivision in Land Lot 161 of the 20th District. acre (tract 2 and 3). Located on the south side of Jim Owens Road, east of Acworth-Due West Road. The Board of Commissioners, as part of the Consent Agenda, approved application subject to: 1) owner/developer to enter into a Development Agreement pursuant to O.C.G.A. 36-71-13 for dedication of system improvements to mitigate traffic concerns; 2) one (1) shared access for the three (3) lots on Jim Owens Road; 3) owner/developer to verify that minimum intersection sight distance is available, and if it is not implement remedial measures subject to the Department of Transportation's approval; owner/developer required to meet all Cobb County Development Standards and Ordinances related to project improvements; 5) State waters exist on site which require undisturbed buffers 25 feet from the top of each bank; 6) minimum house size of 1,600 square feet. Motion by Wysong, second by Byrne, carried 5-0.
- SCC ATLANTA, INC. (June W. Murray, owner) for Rezoning from R-30 to R-20 for the purpose of a Subdivision in Land Lots 231, 232 and 263 of the 20th District. 28.88 acres. Located on the east side of Mars Hill Road, north of Ford Road. (Held by the Planning Commission on 7-5-94; therefore was not considered by the Board of Commissioners on 7-19-94)
- Z-100 JIM ROBINSON (William A. Hunter, owner) for Rezoning from R-20 to R-15 for the purpose of a Subdivision in Land Lot 719 of the 19th District. 6.92 acres. Located on the south side of Macedonia Road, west of Noses Creek. Board of Commissioners, as part of the Consent Agenda, approved application subject to: 1) 1,450 square foot minimum house size; 2) detention facilities not to encroach into building setbacks adjacent to developed land; 3) developed runoff not to exceed the capacity of the existing storm drainage system downstream; owner/developer to enter into a Development Agreement pursuant to O.C.G.A. 36-71-13 for dedication of system improvements to mitigate traffic concerns; 5) applicant to verify that minimum intersection sight distance is available and if it is not, implement remedial measures, subject to the Cobb DOT approval, to achieve the minimum requirements of 350 feet; 6) owner/developer is required to meet all Cobb County Development Standards and Ordinances related to the project improvements. Motion by Wysong, second by Byrne, carried 5-0.

- **Z-101** CIRCLE W CONSTRUCTION (Harold Robinson, owner) Rezoning from R-30 to R-20 for the purpose of a Subdivision in Land Lots 275 and 276 of the 19th District. 24.8 acres. Located at the south end of Commonwealth Avenue, south of Villa Rica Road. The Board of Commissioners, as part of the Consent Agenda, approved application subject to: 1) minimum house size of 1,700 square feet; 2) State waters exist on site which require undisturbed buffers 25 feet from the top of each bank; 3) project subject to the Cobb County Flood Damage Prevention Ordinance; 4) owner/developer is responsible for obtaining any required wetland permits from the U.S. Army Corps of Engineers. Motion by Wysong, second by Byrne, carried 5-0.
- Z-102 DAVID PEARSON (Larry and Jane Carithers, owners) for Rezoning from R-20 to R-15 for the purpose of a Subdivision in Land Lots 212 and 225 of the 1st District. 10.0 acres. Located on the west side of Lower Roswell Road, north of Forest Brook Parkway. The Board of Commissioners approved application subject to: 1) minimum house size of 2,000 square feet; 2) project subject to the Cobb County Flood Prevention Ordinance; owner/developer to enter into a Development Agreement pursuant to O.C.G.A. 36-71-13 for dedication of system improvements to mitigate traffic concerns; owner/developer required to meet all Cobb County Development Standards and Ordinances related to project improvements; 5) maximum of 20 lots for development; 6) allowance of rear yard setback of 35 feet in lieu of required 40 feet on lot #2 and allowance of major side yard setback of 20 feet in lieu of required 25 feet on lots #1 and #20; 7) detention pond(s) to be landscaped around entire perimeters of the detention ponds so as to visually screen detention systems from adjoining property owners (landscaping plans to be approved by Staff), with special emphasis to be given during the Plan Review process to insure that detention ponds do not release/water onto adjoining properties; 8) installation of a six (6) foot brick fence along Lower Roswell Road frontage; 9) installation of accel/dame1 lance along entire property frontage; 10) internal roadway design to be approved by Cobb DOT via the Plan Review process. Motion by Wysong, second by Byrne, carried 5-0.

lane to tie into decel Lane on adjoining property; decel lane for this project to be installed per DOT Standards. (27)

- THOMAS AND DONNA STEWART for Rezoning from R-80 to R-30 for the purpose of Three Single Family Homes in Land Lot 278 of the 20th District. 3.86 acres. Located on the east side of Frank Kirk Road, north of Stoney Acres Drive. The Board of Commissioners, as part of the Consent Agenda, approved application subject to: 1) 2,000 square foot minimum house size; 2) one (1) shared access from Frank Kirk Road; 3) one lot, plus applicant's lot, which applicant is currently building on, is to be platted and recorded through the Development Control Department. Motion by Wysong, second by Byrne, carried 5-0.
- ELLIS BROTHERS DEVELOPMENT, INC. (G. E. Rhodes, Jr., Z-104 owner) for Rezoning from R-20 to R-12 for the purpose of a Subdivision in Land Lot 33 of the 17th District. 14.97 Located at the north end of Silhouette Drive, north of Clay Drive. The Board of Commissioners held application until the August 16, 1994 Commissioners' Zoning Hearing with direction for Legal Staff to review legal issues involved in this application and contact the County Surveyor to verify the legal conditions of subject property. Motion by Wysong, second by Thompson, carried 5-0.
- Z-105 RAYMOND MOSS (Talley E. Fountain, owner) for Rezoning from R-20 to R-12 for the purpose of a Subdivision in Land Lot 771 of the 16th District. 3.8 acres. Located on the east side of Piedmont Road, east of Glenridge The Board of Commissioners deleted application to "straight" R-15 zoning district subject to: owner/developer to enter into a Development Agreement pursuant to O.C.G.A. 36-71-13 for dedication of system improvements traffic to mitigate concerns; owner/developer required to meet all Cobb County Development Standards and Ordinances related to project improvements; 3) owner/developer to coordinate with the Cobb DOT Engineering Division prior to development plan approval in order to ensure compatibility with the roadway project to minimize impacts. Motion by Wysong, second by Thompson, carried 5-0.

- Z-106 CHARLES J. JONES, INC. (South Cobb L.P., owner) for Rezoning from R-20 to PRD for the purpose of a Subdivision in Land Lots 924 and 925 of the 19th District. 10.107 acres. Located on the north side of the East-West Connector, west of Hicks Road. The Board of Commissioners, as part of the Consent Agenda, approved application subject to: 1) modification to the recreation area on the adjoining tract (petition #Z-13 of 2-15-94) as shown on revised site plan for this petition; 2) minimum house size of 1,600 square feet; 3) project subject to the Cobb County Flood Damage Prevention Ordinance; 4) State waters may exist on site which would require undisturbed buffers 25 feet from the top of each bank; 5) entrance to be constructed at existing median break location which shall include deceleration and acceleration lanes with tapers per DOT policy; 6) owner/developer is required to meet all Cobb County Development Standards and Ordinances related to project improvements. Motion by Wysong, second by Byrne, carried 5-0.
- B. WILMONT WILLIAMS (Gordon R. Backus and George B. Z-107 Backus, Sr., owners) for Rezoning from R-20 to RA-4 for the purpose of a Subdivision in Land Lots 8 and 71 of the 1st District. 14.429 acres (revised). Located on the southeast side of Woodlawn Drive, north of Powers Road. The Board of Commissioners approved application subject to: 1) house size of 2,000 square feet for one story homes and 2,400 square feet for two story homes; installation along the common property line of subject property and Boomershine property of an at least six (6) foot brick wall; 3) site plan submitted dated 6-20-94 4) owner/developer is responsible for obtaining any required wetland permits from the U.S. Army Corps of Engineers; 5) State waters may exist on site which may require undisturbed buffers 25 feet from the top of the 6) owner/developer to enter into a Development Agreement pursuant to O.C.G.A. 36-71-13 for dedication of system improvements to mitigate traffic concerns. Motion by Thompson, second by Wysong, carried 5-0.
- CORNERSTONE INVESTMENTS (Pope and Land Pool Six, L.P., owner) for Rezoning from OS to PRD for the purpose of a Subdivision in Land Lots 62 and 63 of the 20th District. 33 acres. Located on the northeast side of Baker Road, east of Moon Station Road. The Board of Commissioners rejected application. Motion by Byrne, second by Wysong, carried 5-0.

Z-109 DAVID PEARSON (Alice Bostic, owner) for Rezoning from R-20 to RA-4 for the purpose of a Subdivision in Land Lots 267 and 268 of the 16th District. 4.725 acres. Located on the southwest side of Trickum Road, north of Easy Circle. Following a presentation by applicant of proposal to combine applications Z-78 and Z-109 to form PRD request, the Board of Commissioners held applications Z-78 Z-109 and with direction that applicant/representative submit new a combined application for PRD, and further directed Staff to insure proper posting and advertisement with no fee to be levied for the new application. Motion by Wysong, second by Cooper, carried 5-0. CLERK'S NOTE: Applications Z-78 and Z-109 are being held until final action on the new application due to fact that rejection, dismissal, etc. would prejudice the property.

Land Use Permits

- LUP-39 SANDY AND RICK CLOUGH for a Land Use Permit for the purpose of an Artist's Studio (storing art prints) in Land Lot 336 of the 20th District. 6.344 acres. Located on the west side of Trail Road, west of Midway Road, (25 Trail Road). The Board of Commissioners, as part of the Consent Agenda, approved application for 12 months subject to: 1) no signs; 2) no employees or customers at site; 3) no on-street parking. Motion by Wysong, second by Byrne, carried 5-0.
- LUP-40
 LEE DUNN (Robert W. and Jimmie W. Pruitt, owners) for a Land Use Permit for the purpose of a Greenhouse Nursery in Land Lots 1123 and 1182 of the 16th District. 0.5 acre. Located on the east side of Cross Gate Drive, 484 feet north of Greenwood Way, (260 Cross Gate Drive). The Board of Commissioners rejected application with 120 days for all business operations to be removed from site. Motion by Thompson, second by Poole, carried 5-0.
- LUP-41 ERIN DRISCOLL for a Land Use Permit (renewal) for the purpose of Child Care in Land Lot 258 of the 20th District. 0.5 acre. Located on the east side of Wyntuck Circle, 1036 feet north of Wyntuck Drive, (3753 Wyntuck Circle). The Board of Commissioners, as part of the Consent Agenda, approved application for 24 months subject to: 1) maximum of 10 children; 2) no employees; 3) no signs; 4) no on-street parking. Motion by Wysong, second by Byrne, carried 5-0.

- CHERYLE WEIDMAN (David and Cheryle Weidman, owners) for a Land Use Permit (renewal) for the purpose of Hair Salon in Land Lot 169 of the 16th District. 0.35 acre. Located on the south side of Windsor Oaks Court, west of Windsor Oaks Drive, (4543 Windsor Oaks Court). The Board of Commissioners, as part of the Consent Agenda, approved application for 24 months subject to: 1) clients by appointment only; 2) no on-street parking; 3) one station, one operator only. Motion by Wysong, second by Byrne, carried 5-0.
- LUP-43 STEVEN K. CRONIC (Charles Entsminger, owner) for a Land Use Permit for the purpose of a Taxidermy Shop in Land Lot 351 of the 16th District. 3.6 acres. Located on the west end of Coventry Drive, 200 feet west of Westminister Way, (Home address: 3702 Keningston Drive). The Board of Commissioners rejected application. Motion by Wysong, second by Cooper, carried 5-0.
- LUP-44 TIM KEPLER (Ava Kepler, owner) for a Land Use Permit for the purpose of a Home Office in Land Lot 180 of the 16th District. 0.34 acre. Located on the east end of Woodford Pass, 724.89 feet north of Mabry Road, (4486 Woodford Pass). The Board of Commissioners, as part of the Consent Agenda, approved application for 12 months subject to: 1) maximum of one (1) employee; 2) no onstreet parking; 3) no signs; 4) no commercial deliveries; 5) no clients at site. Motion by Wysong, second by Byrne, carried 5-0.

Special Land Use Permits

- SLUP-5 GRIFFITH MICRO SCIENCE (Indcon, L.P., owner) for a Special Land Use Permit for the purpose of a Sterilization Facility in Land Lots 899 and 962 of the 17th District. 5.70 acres. Located on the south side of Olympic Industrial Drive, north of Seaboard Airline Railroad. The Board of Commissioners, as part of the Consent Agenda, approved application subject to the Air Quality Permit issued by the State of Georgia, Department of Natural Resources, Environmental Protection Division. Motion by Wysong, second by Byrne, carried 5-0.
- SLUP-6

 BEDMINSTER BIOCONVERSION CORP. (Cobb County, Georgia, owner) for a Special Land Use Permit for the purpose of a Building and Operating a Municipal Solid Waste Composting Facility in Land Lots 406, 407, 409 and 490 of the 19th District. 19.0 acres. Located on the west side of North County Farm Road, north of County Farm Drive. WITHDRAWN

SLUP-7

BELLSOUTH MOBILITY, INC. (United States Postal Service, owner) for a Special Land Use Permit for the purpose of a Cellular Transmission Tower and Switchgear Building in Land Lots 525 and 556 of the 16th District. 3.934 acres. Located on the southeast side of Sandy Plains Road, north of Post Oak Tritt Road. The Board of Commissioners, as part of the Consent Agenda, approved application subject to: 1) maximum height of 153 feet; 2) structure to be self-supported monopole. Motion by Wysong, second by Byrne, carried 5-0.

HELD CASES

Z-68

GES DEVELOPMENT (Kathryn H. Cole, Marjorie W. Mayes, Ralph E. Kempf, William D. Hadaway, and William K. White, owners) for Rezoning from R-30 to R-20 for the purpose of a Subdivision in Land Lots 263 and 270 of the 20th District. 68.7 acres. Located on the north side of Hadaway Road, east of Mars Hill Road. The Board of Commissioners approved application subject to: 1) no development of property (no permits to be issued by Cobb County) prior to the negotiation and execution of an easement agreement for the installation of a sanitary sewer line across the Cobb Estate property, or in lieu thereof an alternate route for sewer line access is determined; 2) letters of agreeable conditions from Garvis Sams, Jr., Attorney for applicant, dated May 20, 1994 and June 10, 1994, marked as Exhibit "A" and Exhibit "A continued"; 3) 40 foot non-destructive buffer zone around the entire property to remain in effect during the development and building phase only. This buffer zone would allow for installation of any utilities through the Where buffer area is penetrated for buffer area. utilities applicant would re-landscape area, landscape plan to be approved by the County; 4) amenity area to include swim and tennis facilities; owner/developer to minimize stormwater runoff into public roads; 6) owner/developer responsible for obtaining any required wetland permits from the U.S. Army Corps of Engineers; 7) existing lake downstream will require extra sensitivity to erosion and sediment controls; 8) State waters may exist on this site which would require undisturbed buffers 25 feet from the top of each bank. Condition of downstream lake/dam unknown and may require extra stormwater controls at this site. Detention ponds adjacent to built-up areas are to be buffered by rear building line setbacks; 9) owner/developer to enter into a Development Agreement pursuant to O.C.G.A. 36-71-13 for dedication of system improvements to mitigate traffic Motion by Cooper, second by Wysong, carried concerns. 5-0.

Z-73 CORNERSTONE INVESTMENTS CO. (Gary House, Kerry and Nancy Cobb, Agnes and Howard Davis, Ronald and Marjorie Tyson, Trinity Chapel, Clarence Tinsley, owners) for Rezoning from R-20 to PRD for the purpose of a Subdivision in Land Lots 694, 695, 712 and 713 of the 19th District. 35.336 acres. Located on the west side of Shadyside Road, south of Pair Road. The Board of Commissioners deleted application to the R-15 zoning district subject to: 1) house size of 1,500 square feet; owner/developer to obtain any required wetland permits from the U.S. Army Corps of Engineers; 3) State waters may exist on site which would require undisturbed buffers 25 feet from the top of each bank; 4) owner/developer to enter into a Development Agreement pursuant to O.C.G.A. 36-71-13 for dedication of system improvements to

mitigate traffic concerns (if there is access to Shadyside); 5) no access to Meadowview Lane; 6) 40 foot non-destructive zoning buffer around property during the development and construction phase, with allowance for utilities to be installed within the 40 foot buffer, with

installed. Motion by Poole, second by Thompson, carried

where

utilities

OTHER BUSINESS

5-0.

Other Business Item #1 -- Consideration of Site Plan Approval for Advanced Auto Parts and Reconsideration of Something Previously Adopted for the purpose of Amending Stipulations regarding Application #87 of April 15, 1986, Res-Care Inc., located on the east side of Floyd Road south of its intersection with Hurt Road, in Land Lots 854 and 855 of the 19th District.

landscaping to be installed

Following a brief presentation by Mark Danneman, the Board of Commissioners approved applicant's request thereby: 1) "adopting" site plan for approximate 0.8 acre portion of overall 33.14 acre tract (site plan for 0.8 acre portion of application #87 of 4-15-86 -- Res-Care Inc., is marked as Exhibit "A" and on file in the Zoning Offices); 2) "removing" stipulation requiring installation of a masonry wall; and 3) "amending" stipulation requiring building exterior to be combination of brick and wood siding and replacing with stipulation that building exterior be traditional in design and constructed with split faced block. Motion by Poole, second by Wysong, carried 5-0.

CLERK'S NOTE: Commissioner Poole introduced discussion of upcoming Zoning Application #Z-146 (R&A Partners) for an Advanced Auto Parts, located on the north side of Bankhead Highway, west of Floyd Road. Commissioner Poole asked for and received the Board's consensus to allow applicant to submit for a grading permit.

Other Business Item #2 -- Consideration of Site Plan Amendment(s) for B. Wilmont Williams (Application Z-70 of June 15, 1993, David and Opal New), for property located on the north side of Old Piedmont Road and Piedmont Road, east of Canton Highway in Land Lots 516 and 517 of the 16th District.

The Board of Commissioners approved Site Plan Amendments thereby:

1) "adopting" amenity area site plan, marked as Exhibit "A"; and,

2) "amending" overall site plan to allow for inclusion of amenity
area subject to submittal by applicant of a revised overall site
plan showing the amenity area in conjunction with the lots (new
site plan to be marked as Exhibit "B" upon receipt by applicant).

Motion by Wysong, second by Byrne, carried 5-0.

Other Business Item #3 -- Reconsideration of Something Previously Adopted for the purpose of Amending Stipulations regarding Application Z-2 of February 18, 1992, Roy P. Varner, located on the north side of Ernest Barrett Parkway, west of Bells Ferry Road in Land Lots 571, 572 and 583 of the 16th District.

Following a brief presentation by Mark Danneman of DOT's recommendation, the Board of Commissioners approved applicant's request thereby replacing stipulation requiring 100 foot right of way for the proposed north-south roadway through the project and replacing with stipulation requiring 70 foot right of way with thirty-six foot pavement width. Motion by Byrne, second by Wysong, carried 5-0.

Other Business Item #4 -- Request for Authorization to Advertise for the required Public Hearings to Amend the Cobb County Zoning and Planning Ordinance regarding proposed amendments to the RA-4, RA-6 and PRD (Planned Residential Development) zoning districts as discussed at the Joint Meeting/Work Session of the Cobb County Board of Commissioners and Planning Commission of June 30, 1994.

The Board of Commissioners authorized advertisement of required public hearings regarding proposed amendments to the Cobb County Zoning and Planning Ordinance, specifically the RA-4, RA-6, and PRD zoning districts. Motion by Cooper, second by Wysong, carried 5-0. CLERK'S NOTE: Authorization request to advertise the proposed amendments to the R-12 zoning district will be included in the request for authorization to amend the Administrative Section of the Cobb County Zoning and Planning Ordinance, Agenda Item #1, Tab 22, before the Cobb County Board of Commissioners on July 26, 1994.

There being no further business the Board of Commissioners' Zoning Hearing was adjourned at 4:43 p.m. Motion by Cooper, second by Poole, carried 5-0.

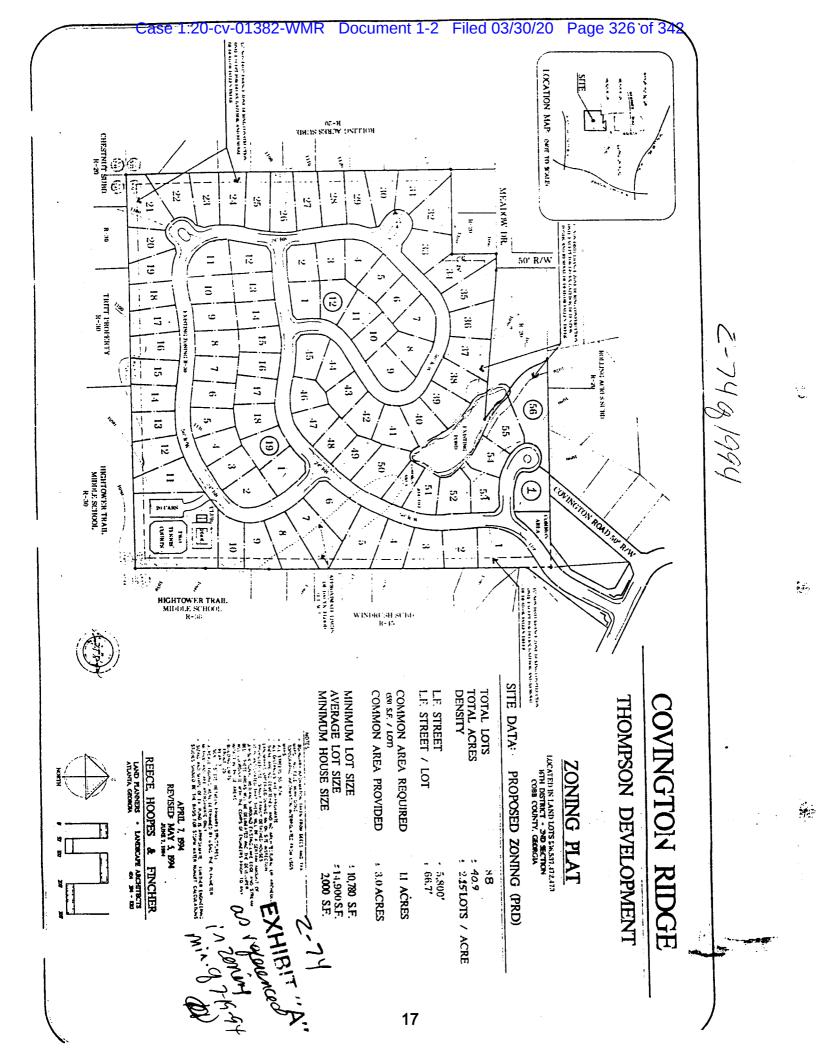
Case 1:20-cv-01382-WMR Document 1-2 Filed 03/30/20 Page 325 of 342

Zoning Hearing Minutes July 19, 1994 Page 15

Adopted Minutes of the July 19, 1994 Board of Commissioners Zoning Hearing.

Karen L. Hach, Deputy County Clerk Cobb County Board of Commissioners

Date Recorded



Case 1:20-cv-01382-WMR Monor 1:22 Scile ROS/80/12 12 Sege 37 70 f 342 JOHN H. MOORE

ATTORNEYS AT LAW

MARIETTA, GEORGIA 3008 EXHIBIT "A"

TELEPHONE (404) 429-MF

POST OFFICE BOX 3305

MARIETTA, GEORGIA 30061

TELECOPIER

July 12, 1994 Zoning Minutes of M

2-93 01994

Hand Delivered

THOMAS H. ROGERS, III

STEPHEN C. STEELE WILLIAM R. JOHNSON

ROBERT D. INGRAM

J BRIAN O'NEIL G. PHILLIP BEGGS

ELDON L BASHAM MATTHEW J. HOWARD SARAH L BARGO BARA J. MURPHREE DIANE M. BUSCH JERE C. SMITH CLAYTON O. CARMACK JEFFREY A. WATKINS ELIZABETH E. DEBAUCHE

> Mr. Ed Thomas Principal Planner Cobb County Planning and Zoning Office Suite 500 100 Cherokee Street

Marietta, Georgia 30090-9674

Application for Rezoning Application No.: z - 93

Applicant/

Owner: Property:

Teaque Investments, L.P. Approximately 87.755 acres, more or less, located in

Land Lots 54, 55, 60, and 61; 20th District; 2nd Section

Cobb County, Georgia

Dear Ed:

As you know, this firm represents Teague Investments, L.P., Applicant and Owner, hereinafter collectively referred to as "Applicant," in its Application for Rezoning with regard to the above-referenced property. After discussions and meetings with Planning and Zoning staff and Department of Transportation staff, as well as various meetings and discussions with area residents concerning the proposed development, including a meeting with the Pastor and members of the Mt. Zion Church, and following the public hearing conducted before the Cobb County Planning Commission, we have been authorized by the Applicant to submit this letter of agreed stipulations which, if the Application for Rezoning is approved, as submitted, shall become a part of the grant of the requested zoning and shall be binding upon the property. letter shall supersede and replace, in full, our letters to you dated June 28, 1994, and July 5, 1994, respectively. The referenced stipulations are as follows:

Rezoning of the subject property will allow for the construction of 470 apartment home units on 35.15 acres, being Tracts II and VI of the site plan prepared by

Moore & Rogers

Mr. Ed Thomas
Principal Planner
Cobb County Planning and Zoning Office
Page Two
July 12, 1994

2-939

Planners and Engineers Collaborative, last revised June 9, 1994, and having a density of 13.97 units per acre.

- (2) Re-establishment of a fifty (50) foot buffer between Tracts III and IV as reflected on the referenced site plan and Yonah Valley Estates.
- (3) The Tracts upon which apartment homes are to be constructed shall be accessed by two separate entrances, one located off Royal North Parkway into Tract II and one located off Royal North Parkway into Tract VI, both as more particularly shown and delineated on the referenced site plan. The main entrance will be the access located into Tract II, which will have controlled access by means of a security gate. The access into Tract VI shall be "resident only."
- (4) Apartment homes shall be traditional in styling and design with wood siding and brick accents.
- (5) Apartments homes shall consist of 1, 2, 3, and 4 bedroom units patterned after Applicant's existing apartment home development known as Walton Park located on South Cobb Drive, Cobb County, Georgia. Toward this end, amenities shall include swimming pool, extensive playgrounds, and community center, including a library.
- (6) Applicant agrees to contribute a sum equal to 25 percent of the costs to reconstruct the traffic signal located at the intersection of Royal North Parkway, Wade Green Road, and Shiloh Road at such time as said intersection is realigned so that Shiloh Road intersects Wade Green Road directly opposite Royal North Parkway. However, in no event shall Applicant's contribution exceed a total sum of \$15,000.
- (7) Signage at the main entrance to the development shall be ground based, monument style signage.
- (8) Applicant agrees that it will not extend Weeks Drive so that it intersects with Royal North Parkway.

MOORE & ROGERS

Mr. Ed Thomas Principal Planner Cobb County Planning and Zoning Office Page Three July 12, 1994

> In a meeting with Reverend Kenneth Simpson and members of Mt. Zion Church held on July 9, 1994, at the Church, an agreement was reached as to the Church's cemetery adjacent to the subject property and the two grave sites which extend onto the subject property. Applicant agrees to erect a chain link fence six (6) feet in height in the setback area as to that portion of the subject property adjacent to the cemetery so that the two referenced grave .sites lie on the Church's side of the fence. The setback area adjacent to the cemetery shall be undisturbed except for the referenced fencing and possible signage.

We believe that the requested zoning, pursuant to the referenced site plan and the stipulations contained herein, will be an enhancement to the property while taking into consideration the properties and owners thereof surrounding the subject development. Thank you for your consideration in this matter.

With kindest regards, I remain

Very truly yours,

MOORE & ROGERS

John H. Moore

JHM:cc

new P

Ms. Joyce Kirk

Reverend Kenneth Simpson Mt. Zion Church

Cobb County Board of Commissioners: William J. Byrne, Chairman William A. Cooper Freeman Poole Joe Thompson Gordon Wysong

Cobb County Planning Commission: Henley A. Vansant, Chairman Murray Homan Richard M. Jones Jerry Dawson Jean Hallinan

As referenced in Kenneth Lynch Zoning Minuted of Lynch 7-19-94. Karen Karen

Deputy a. Clark

Ms. Lisa Rowling 2849 Paces Ferry Road Suite 160 Atlanta, Georgia

July 15, 1994.

· RE: Your File No. 2511

Dear Lisa:

Per your letter of July 15, 1994, the Executive Committee of the Vinings Homeowners Association has voted in support of your zoning application, Cobb County Application No. Z-94.

We accept confirmation that Publix will agree to impose a fifty (50') foot setback adjacent to Interstate 285, Paces Ferry Road, and Cumberland Parkway with respect to the outparcels (the "Outlots") proposed to be developed on a portion of the Property as said outparcels are depicted on that certain Site Plan dated June 9, 1994, prepared by Robertson Loia Roof for Publix Super Markets and filed with the Department of Planning and Zoning of Cobb County, Georgia, and also as depicted on that certain Outlot Plan dated July 11, 1994, prepared by Robertson Loia Roof for Publix Super Markets.

A copy of our correspondence today will be sent via facsimile to Mr. Joe Lee Thompson, Cobb County Commissioner, District 2. Please contact me should you have any questions or comments.

Sincerely,

Kenneth P. Lynch, Jr.

President, Vinings Homeowners Association

KPL:mk

cc: Bob Burkett

Joe Lec Thompson

JAY Y. MCCLURE, P.C.
ATTORNEYS AT LAW
2849 PACES FERRY ROAD
SUITE 160

ATLANTA. GEORGIA 30339

IAY Y. MCCLURE

OF COUNSEL! KATHIE G. MCCLURE EXHIBIT "A"

TELEPHONE (404) 801-0160

TELECOPIER (404) 801-8305

July 15, 1994

VIA: TELECOPIER 364-0253 AND REGULAR MAIL

Mr. Kenneth Lynch Vinings Homeowners Association c/o Kenneth Lynch & Associates 56 East Andrews Drive Suite 29 Atlanta, Georgia 30305

RE: Application of Publix Super Markets, Inc., a Florida corporation ("Publix") to rezone property located at the southwest corner of Paces Ferry Road and Cumberland Parkway (the "Property"); Cobb County Application No. Z-94

Our File No. 2511

Dear Ken:

Please accept this letter as confirmation that Publix will agree to impose a fifty (50') foot setback adjacent to Interstate 285, Paces Ferry Road, and Cumberland Parkway with respect to the outparcels (the "Outlots") proposed to be developed on a portion of the Property as said outparcels are depicted on that certain Site Plan dated June 9, 1994, prepared by Robertson Loia Roof for Publix Super Markets and filed with the Department of Planning and Zoning of Cobb County, Georgia, and also as depicted on that certain Outlot Plan dated July 11, 1994, prepared by Robertson Loia Roof for Publix Super Markets.

Publix has agreed to make this concession in order to address concerns presented to it by the Vinings Homeowners Association and in order to obtain the support of the Vinings Homeowners Association to its application to rezone described above. If the Vinings Homeowners Association elects not to support the rezoning, Publix will withdraw its agreement to impose fifty (50') foot setbacks along all three (3) right-of-ways adjacent to the Outlots

Mr. Kenneth Lynch July 15, 1994 Page 2 2-94 ...A' Continued

and will request that the County impose the standard setbacks set forth in the Cobb County Zoning Ordinance.

Please do not hesitate to contact me at your convenience should you have any questions or comments with respect to the matters addressed herein.

Sincerely,

Lisa G. Rowling

LGR/eq Enclosure

cc: Bob Burkett

Publix Super Markets, Inc.

Via: Telecopier and Regular Mail

6:\publix\vinings\lynchl.ltr

LAW OFFICES

GARVIS L. SAMS, JR., P. C.

SUITE 200

376 POWDER SPRINGS STREET

MARIETTA, GEORGIA 30064

(404) 422-7016 TELEPHONE

May 20, 1994

2-68 8 1994 (404) 426-6583
FACSIMILE

EXHIBIT "A"

OD VAFORMED IN 7-19-94

Zoning min. & CA)

VIA HAND DELIVERY

Ms. Judy Williams, Senior Planner Cobb County Zoning Department Suite 500, 100 Cherokee Street Marietta, Georgia 30090-9674

> Re: Application of GES Development, Inc. to Rezone a 68.7 acre tract of land from R-30 to R-20 . (Application No. Z-68)

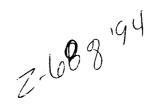
Dear Judy:

I have been engaged by and represent GES Development, Inc. (hereinafter the "Applicant") in connection with the abovecaptioned Application for Rezoning. Consistent with discussions and dialogue established between the Applicant and Staff thus far, please allow this letter to serve as the Applicant's expression of agreement with the following stipulations which, upon approval of the requested rezoning, shall be binding upon and become conditions of the rezoning of the subject property:

- A maximum number of 16 lots; 1.
- A minimum lot size of 20,000 sq. ft.; 2.
- A minimum house size of 1,800 sq. ft. with respect to 3. one-story houses and minimum of 2,000 sq. ft. with respect to two-story houses (the Applicant anticipates that the average house size will be 2,200 sq. ft. throughout the development);
- Architectural style of the homes to be traditional with 4. hard exterior facades, subject to Staff review and approval;
- Price range of the homes will be between One-Hundred 5. Twenty Thousand Dollars (\$120,000.00) and One-Hundred Fifty Thousand Dollars (\$150,000.00);
- Subject to Cobb County Department of Transportation's 6. recommendations including the following:

VIA HAND DELIVERY

Ms. Judy Williams, Senior Planner Cobb County Zoning Department May 20, 1994 Page 2



- a. The installation and construction of acceleration and deceleration lanes;
- b. Compliance with D.O.T. sight distance requirements;
- c. Voluntary conveyance and dedication of required right-of-way; and,
- d. The execution of a Development Agreement for the dedication of system improvements to mitigate traffic concerns articulated during the Plan & Review Process pursuant to O.C.G.A. §36-71-13.
- 7. Subject to the submission of a landscape plan and Staff review and approval of same during the Plan & Review Process including, but not limited to, the following:
 - a. Compliance with Cobb County's Tree Preservation and Replacement Ordinance;
 - b. The construction and erection of a swim/tennis amenity package within the interior of the subdivision away from existing residential development or, in the alternative, fronting onto Hadaway Road;
 - c. Sodded front yards and heavy landscaping throughout the subdivision; and,
 - d. A forty foot (40') non-destructive zone around the perimeter of the subject property shall remain inviolate during the construction and build-out of the subdivision (except with respect to the installation of utilities as required).
- 8. Subdivision entrance signage to be ground-based, monument-style and consistent with provisions of the Cobb County Sign Ordinance and the Applicant's landscape plan;
- 9. Utilization of low-intensity, environmental-type lighting with respect to the aforementioned swim/tennis amenity package;

VIA HAND DELIVERY

Ms. Judy Williams, Senior Planner Cobb County Zoning Department May 20, 1994 Page 3

- 10. Subject to the Cobb County Development & Inspection Department's recommendations with respect to stormwater detention, hydrology and downstream considerations including, but not limited to, the following:
 - a. Compliance with the Cobb County Flood Damage Prevention Ordinance;
 - b. Although no wetlands have been observed on the subject property, subject to the Applicant obtaining any required wetland permits from the U.S. Army Corps of Engineers;
 - c. Undisturbed twenty-five foot (25') buffers from the tops of the banks of any streams on the subject property; and,
 - d. Additional sensitivity with respect to the lake located on the Cobb Estate property to the east of the subject property.

Although you have not received same as of the writing of this letter, we will be filing a revised site plan incorporating the aforementioned stipulations/conditions. I would appreciate it if you would take same into consideration in concert with the text of this letter and include a copy of same in your preliminary and final Zoning Analysis.

Please do not hesitate to call should you or members of your Staff have any questions or require any additional documentation or information prior to making your recommendation to the Planning Commission and the Board of Commissioners.

Very truly yours,

Garvis L. Sams, Jr.

GLS, Jr./dsm

cc: Members, Cobb County Board of Commissioners Members, Cobb County Planning Commission

Ms. Karen Hach, Deputy Clerk

Mr. Roger S. Cobb, Jr.

Mr. Evan Schultz

EXHIBIT "A" Continued in Zoning

Law Offices

Garvis L. Sams, Jr., P. C.

Suite 200

376 Powder Springs Street

Marietta, Georgy: 57

(404) 422-7016 TELEPHONE

38.

(404) 426-6583 FACSIMILE

June 10, 1994

2-688

Ms. Judy Williams, Senior Planner Cobb County Zoning Department Suite 500, 100 Cherokee Street Marietta, Georgia 30090-9674

> Application of GES Development, Inc. to Rezone a 68.7 acre tract of land from R-30 to R-20 (Application No. Z-68)

Dear Judy:

As a follow-up to my oral presentation to the Cobb County Planning Commission in connection with the above-styled application for re-zoning, please allow this letter to serve as confirmation of modification to those stipulations contained in my May 20, 1994, letter to you (a copy of which is enclosed herein).

In order to modify Stipulation No. 3 contained in the aforementioned letter, please be advised that the applicant is amenable to the following stipulation which shall be binding upon and become a condition of the re-zoning of the subject property to the R-20 classification:

A minimum house size of 2000 square feet with respect to one-story houses and a minimum of 2200 square feet with respect to two-story houses (the applicant now anticipates the average house size will be approximately 2400 square feet throughout the development).

It is my understanding that this letter will be included in a package of information being forwarded to members of the Cobb County Board of Commissioners as a supplement to your department's original entry in the Zoning Analysis. Please do

Cobb County Zoning Department
June 10, 1994
Page 2

not hesitate to call should you or your staff have any questions or require any additional documentation or information.

Very truly yours,

Garvis L. Sams, Jr.

GLS, Jr./kda Enclosure

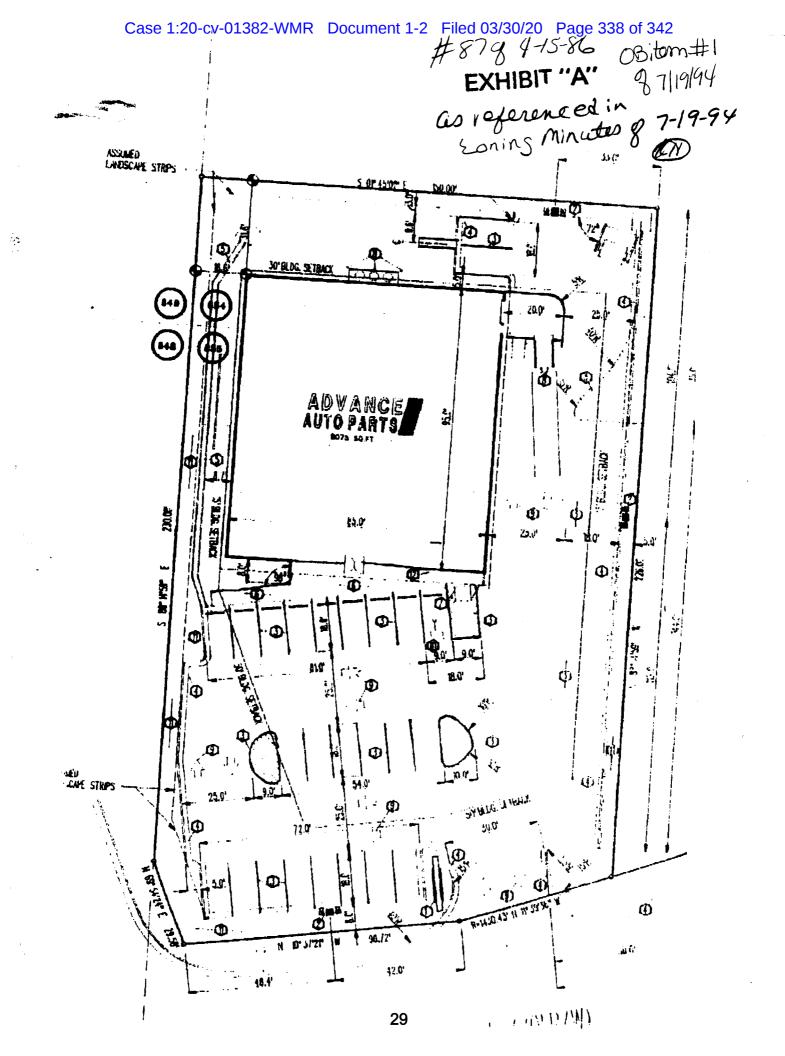
345 C

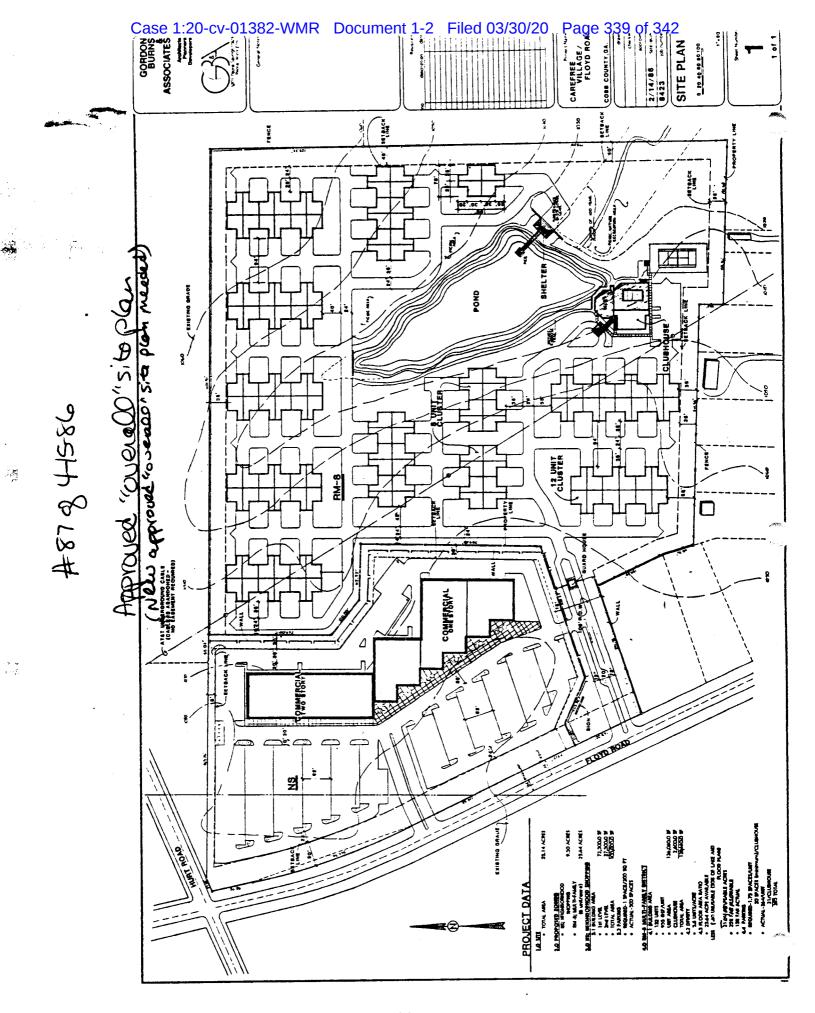
cc: Members, Cobb County Board of Commissioners

Ms. Karen Hach, Deputy Clerk

Mr. Evan Schultz

w/enclosure





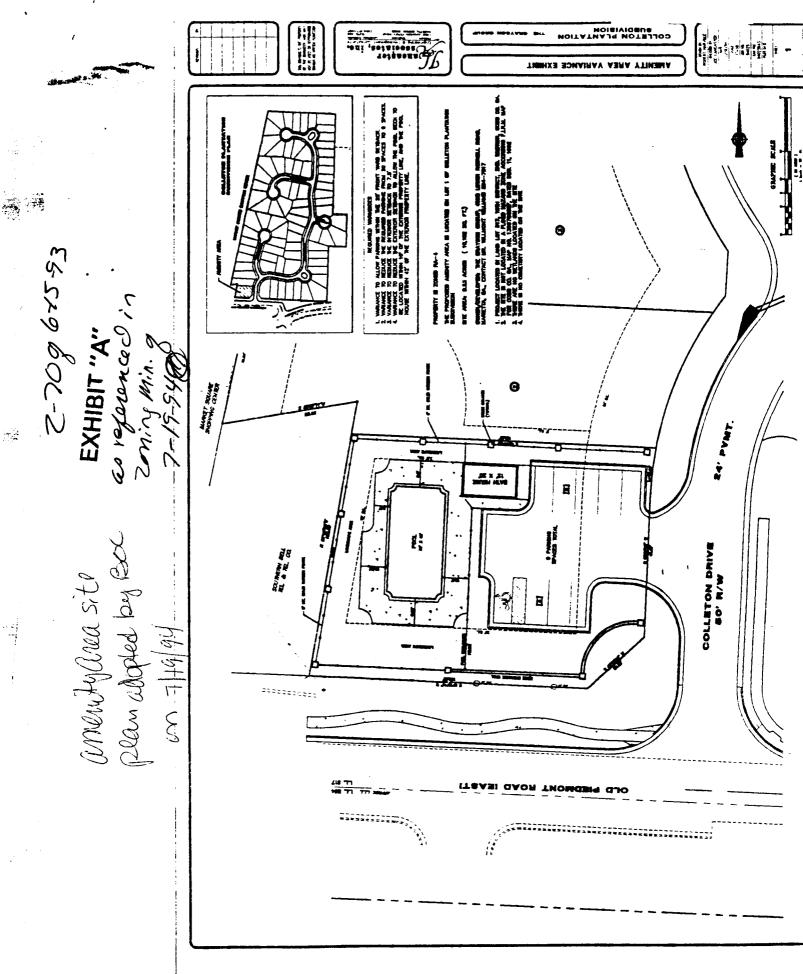


Exhibit 61

Chairman Mike Boyce Responds to Reaction Concerning his Limited Emergency Authorization Allowing Sterigenics to Reopen

March 26, 2020 | The Chairman was further warned today about concerns his order to reopen the Sterigenics facility was "too limited."

Furthermore, the forwarded message said;

"The Secretary does not think it is sufficient to respond to the nation's needs for the medical components that are required to treat COVID-19 patients – and other patients who will be impacted by the increased demand.

Second, it is only for 21 days, the needs will extend significantly beyond that.

Third, PPE was only about 20% of what was being sterilized at Sterigenics, and other items like catheters, syringes, IV sets and ventilator components like tubes, filters, and masks are critical to helping patients.

Finally, we don't think that one county should be allowed to jeopardize the nation's response to an unprecedented national pandemic. My understanding is that this particular plant represented 4% of the total U.S. capacity for Ethylene Oxide Sterilization. If it remains shuttered, there are national implications.

We hope you will use whatever communication channels you have to encourage the county to expand the decree to full production of all medical items and extend it until the nation's threat and need is over.

Conversations on next steps from the Federal Government are occurring at the highest levels, should the situation not change."

Chairman Boyce stands by his order.

Contact

Ross Cavitt | Communications Director ross.cavitt@cobbcounty.org | 770-528-2485 www.cobbcounty.org/communications/news